TABLE OF CONTENTS

END OF SECTION

SECTION 01 10 00
SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner or Others.
4. Site Access and Work restrictions.
5. Project Permits.

1.02 DEFINITIONS

A. Buffalo River AOC: Buffalo River Area of Concern, which was established by the U.S.-Canada Great Lakes Water Quality Agreement (Annex 2 of the 1987 Protocol) as having experienced environmental degradation.

B. CDF: Buffalo Harbor Confined Disposal Facility Dike No. 4.

C. Debris: The term “Debris” shall mean material which cannot be pumped through a hydraulic offloading process, but will still be allowed to be disposed in the CDF such as rocks, tree stumps, branches, small steel items, wooden timber, pieces of concrete or other material that is collected as a part of dredging. The definition of Debris for this Work does not include consolidated layers of leaves present within the dredged material even though these leaves could be difficult to pump at the sediment offloading facility.

D. DMU: Dredge management unit.

E. Owner: The USEPA GLNPO is the owner of the Work. This is different than the owner of the CDF, which is the USACE, Buffalo District.

F. Owner’s Representative: The entity responsible for oversight of all phases of the Project on behalf of USEPA.

G. USACE: United States Army Corps of Engineers. The USACE owns and operates the CDF.

H. USEPA: United States Environmental Protection Agency.

I. GLLA: Great Lakes Legacy Act.

J. GLNPO: Great Lakes National Program Office.

K. NYSDEC: New York State Department of Environmental Conservation.

L. PCBs: Polychlorinated Biphenyls.

M. Contractor: The successful Bidder of the Work will become the Contractor and will be directly contracted to the USEPA's Great Lakes National Program Office (GLNPO) to perform the Work.

N. TSCA-level Sediment (or TSCA-level Material): : Generally, sediment and debris containing total PCBs greater than or equal to 50 milligrams per kilogram (mg/kg) which therefore are regulated under the Toxic Substances Control Act (TSCA) and also includes all material identified by USEPA as regulated under TSCA regardless of PCB concentration. Such sediments being remediated under this project are also classified as hazardous in New York and carry RCRA hazardous waste code B007.

O. Non-TSCA-level Sediment (or Non-TSCA-level Material): Sediment and debris containing total PCBs less than 50 mg/kg that are not regulated by USEPA as TSCA sediment and is not RCRA hazardous in New York.

P. Work: Remedial activities described herein which the Contractor will perform.

1.03 PROJECT INFORMATION

A. Project Identification: Sediment Remediation for the Buffalo River AOC under the GLLA.

B. Project Location: The Buffalo River AOC is located in the city of Buffalo in western New York State. The river flows from the east and discharges into Lake Erie near the head of the Niagara River. A portion of the Buffalo River is designated as the federal navigation channel and is maintained by the USACE. The AOC includes the entire 1.4-mile (2.3-kilometer [km]) stretch of the City Ship Canal (Ship Canal) and extends in the Buffalo River upstream approximately 6.2 miles (10 km), as shown on the Project Drawings.

C. Description of Habitat Restoration Sites:

1. City Ship Canal:
    a. The City Ship Canal is a man-made, dead-end canal. The restoration site is the portion at the head (south end) of the Ship Canal and includes approximately 4,000 feet of shoreline on both sides of the canal (Drawing EH-5).

b. The head of the City Ship Canal is bordered by naturally sloped shoreline with, scattered concrete, debris, rubble, scrap material, pilings, sheet piling walls, deteriorating concrete bulkhead and culvert pipes.

2. Riverbend Site:
   a. The Riverbend Site encompasses approximately 5,400 feet of shoreline and adjacent near-shore area on the left descending bank and the site is bisected by the South Park Bridge (Drawing EH-1 and EH-2).
   b. The shoreline within the Riverbend restoration project area is variable. Along the upstream half of the Project area, it contains stone, concrete cap, and natural sloped shorelines. Riparian vegetation is present along portions of this area. The shoreline along the downstream half consists of naturally sloped shoreline, old timber pilings, a concrete cap, and a retaining structure along the most downstream portion of the site.
3. Buffalo Color:
   a. The Buffalo Color Peninsula site is located on the right descending bank across from the lower portion of the Riverbend Site (Drawing EH-2). The site is the location of previous environmental remediation efforts, including the construction of a subsurface slurry wall around the perimeter of the site. During previous remedy construction, additional wastefill material was identified along the shoreline and outside of the slurry wall on the downstream portion of the site. In order to preserve the stability of the constructed slurry wall, approximately 4,000 CY of wastefill immediately adjacent to the slurry wall was left in place along a 500-foot length of the southwestern shoreline. This material may be the subject of subsequent pending remediation. Based on the "as-built" cross sections from the previous remediation, up to 10 feet of wastefill was excavated to within 30 feet of the slurry wall. The wastefill material remaining in the river was capped with a base layer of sand to stabilize side slopes, followed by a geotextile layer and then a surface layer of shot rock and/or riprap.
   b. The upland portion of the site is currently mowed grass with riprap banks that contain a mix of native vegetation and invasive plant species. The site extends for approximately 2,900 feet between the abandoned Niagara Frontier Transportation Authority half bridge and the Eastern CSX railroad bridge.
4. Katherine Street:
   a. The Katherine Street Peninsula Site includes approximately 1,600 feet of shoreline on the right descending bank along the southeastern corner of the Katherine Street Peninsula. The river bank is steeper at the northern portion of the shoreline, where the navigation channel is approximately 50 feet from the shore. The

shoreline becomes considerably shallower at the southeastern corner of the peninsula, where the navigation channel is almost 150 feet from shoreline. The majority of the restoration area is comprised of vegetated river bank that is generally abandoned industrial property, with the exception of the most upstream portion, where a metal fabricating facility has a small boat ramp and dock (Drawing EH-3).

5. Ohio Street:
   a. The Ohio Street Site is located on the right descending bank shoreline that includes a NYSDEC Park with a small boat launch, an inlet area that contains a combined sewer outfall (CSO), and a downstream portion that is currently occupied by a local rowing club. The majority of the park portion of the restoration area includes naturally sloped shorelines (Drawing EH-4).
   b. The boundaries of the restoration site include approximately 1,200 feet of shoreline. The design integrates proposed site upgrades for the rowing club and has been discussed with local NYSDEC staff that is responsible for park maintenance.

D. Owner: United States Environmental Protection Agency, Great Lakes National Program Office.

   1. Owner Contact: Scott Cieniawski.
      a. Address: Mail Code G-17J; 77 W. Jackson Blvd; Chicago, IL 60604.
      b. Work Phone: 312/353-9184.
      c. Email: cieniawski.scott@epa.gov.

E. Engineer: CH2M HILL, INC and team subcontractor Ecology and Environment Engineering, P.C. (EEEPC).

   1. CH2M HILL Contact: Rob Stryker.
      a. Address: 135 S. 84th Street; Suite 400; Milwaukee, WI 53214.
      b. Work Phone: 414/847-0430.
      c. Email: Rob.stryker@ch2m.com.
   2. EEEPC Contact: Thomas R. Heins, P.E.
      a. Address: 368 Pleasant View Drive; Lancaster, NY 14086.
      b. Work Phone: 716/684-8060.
      c. E-mail: Theins@ene.com.

F. Owner’s Representative: TBD.

1.04 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work is defined by the Contract Documents and is subdivided into Base Work and Optional Work. The Optional Work will be undertaken at the Owner's discretion. The Work is subdivided as follows:

1. Base Work: Non-TSCA-level sediment dredging in the Buffalo River and disposal of the sediment in the CDF.
2. Option 1: Placement of a cap at the south end of the City Ship Canal.
3. Option 2: Non-TSCA-level sediment dredging in the City Ship Canal and placement of an armored cap adjacent to the ADM/Pillsbury property.
4. Option 3: Installation of in-water habitat restoration features at five sites within the Buffalo River.
5. Option 4: Dredging and Disposal of TSCA-level Sediment.

B. Tasks Associated With Non-TSCA-level Sediment Dredging in the Buffalo River (Base Work):

1. Mobilizing equipment and personnel.
2. Establishing and maintaining temporary office facilities for the duration of the Work, including Optional Work authorized by the Owner.
3. Constructing (or improving existing) haul roads and staging areas at the CDF for offloading sediment and debris, temporary barge mooring areas, drip containment structures and other access structures (if necessary).
4. Performing a bathymetric survey to document the pre-dredge sediment conditions
5. Locating in the field all utilities within work areas.
6. Installing, maintaining, and removing silt curtains in the river when dredging in DMUs requiring silt curtains.
7. Installing equipment and performing water quality monitoring in the river.
8. Mechanical dredging of approximately 438,000 CY of non-TSCA-level contaminated sediment from the Buffalo River and loading the sediment into watertight barges.
9. If necessary, making improvements to the CDF to accommodate sediment and debris offloading.
10. Transporting loaded barges to the CDF.
11. Removing debris from the barges at the CDF, staging debris temporarily near the offloading area, loading debris into trucks, and transporting it for disposal in designated areas within the CDF
12. Mixing sediment with the free water from the CDF to create slurry and pumping the sediment slurry into the CDF.

13. Performing a post-dredge bathymetric survey to document sediment removal and payment quantities
14. Dismantling and removal of temporary facilities not needed for future Work.
15. Site restoration at staging/processing areas, if necessary
16. Demobilization of personnel and equipment not needed for Optional Work yet to be completed.

C. Tasks Associated With Placement of a Cap At the South End of the City Ship Canal (Option 1 Work):

1. Mobilizing equipment and personnel necessary to perform Option 1 Work
2. Performing sampling and analytical testing of imported material sources to confirm compliance with Specifications
3. Constructing (or improving existing) haul roads and staging areas for capping materials, temporary barge mooring areas, and other access structures (if necessary).
4. Locating in the field all utilities within work areas
5. Installing equipment and performing water quality monitoring in the river if required as part of permit conditions.
6. Placement of reactive cap material and common in-water fill up to design elevations over approximately 290,000 ft^2 of contaminated sediment at the end of the Ship Canal.
7. Performing bathymetric surveys and quality control checks to document capping placement and payment quantities.
8. Continued performance of water quality monitoring in the river.
9. Dismantling and removal of the temporary facilities not needed for future Work followed by the site restoration at staging areas, if necessary.
10. Demobilization of personnel and equipment not needed for Base or Optional Work yet to be completed.

D. Tasks Associated With Non-TSCA-level Dredging in the City Ship Canal and Placement of an Armored Cap Adjacent to the ADM/Pillsbury Property (Option 2 Work):

1. Mobilizing equipment and personnel necessary to perform Option 2 Work.
2. Performing sampling and analytical testing of imported material sources to confirm compliance with Specifications.
3. Constructing (or improving existing) haul roads and staging areas for capping materials, temporary barge mooring areas, and other access structures (if necessary).

4. Performing a bathymetric survey to document the pre-dredge sediment conditions.
5. Locating in the field utilities within work areas.
6. Installing, maintaining, and removing silt curtains in the river when dredging in DMUs requiring silt curtains.
7. Installing equipment and performing water quality monitoring in the river.
8. Mechanical dredging of approximately 50,000 CY of contaminated sediment from the Ship Canal and loading the sediment into watertight barges
9. Transporting loaded barges to the CDF.
10. Removing Debris from the barges at the CDF, staging debris temporarily near the offloading area, loading debris into trucks, and transporting it for disposal in designated areas within the CDF.
11. Mixing sediment with the free water from the CDF to create slurry and pumping the sediment slurry into the CDF.
12. Performing a post-dredge bathymetric survey to document sediment removal and payment quantities. Placement of cap materials up to design elevations within the river.
13. Performing bathymetric surveys and quality control checks to document capping placement.
14. Decontamination, dismantling and removal of temporary facilities not needed for future Work.
15. Site restoration at staging/processing areas, if necessary.
16. Demobilization of personnel and equipment not needed for Base or Optional Work yet to be completed.

E. Tasks Associated with Installation of In-water Habitat Restoration Features at Five Sites within the Buffalo River (Option 3 Work):

1. Mobilizing equipment and personnel necessary to perform Option 3 Work.
2. Performing sampling and analytical testing of imported material sources to confirm compliance with Specifications.
3. Constructing (or improving existing) haul roads and staging areas for habitat restoration materials, temporary barge mooring areas, and other access structures (if necessary).
4. Performing a bathymetric survey to document the post-dredge/pre-habitat sediment conditions.
5. Removing, staging, and properly characterizing and disposing miscellaneous scrap metal, concrete, wood, and other solid debris located within the in-water portion of the Project area and identified by the Owner’s Representative for removal during habitat restoration.

6. Providing, placing, grading and compacting backfill to restore the site to the proposed grades as shown on the Drawings to promote a proper platform for planting.
7. Locating in the field all utilities within work areas.
8. Installing in-water restoration features shown on the Drawings.
9. Providing monitoring of in-water restoration features.
10. Providing a 2 year guarantee of survival for plants after approval of installation, replace dead or diseased plants in order to meet minimum coverage requirements.
11. Demobilization of personnel and equipment not needed for Base or Optional Work yet to be completed.

F. Tasks Associated With Dredging and Disposal of TSCA-level Sediment (Option 4 Work):

1. Mobilizing equipment and TSCA /RCRA[1] trained personnel necessary to perform Option 4 Work.
2. Performance of site specific health and safety requirements in the dredging, handling and, and processing of all TSCA/RCRA waste streams.
3. Collection of preconstruction baseline samples at the TSCA staging/ processing site.
4. Constructing (or improving existing) haul roads and staging areas at the TSCA staging site for offloading TSCA-level Sediment and Debris, temporary barge mooring areas, drip containment structures and other access structures (if necessary).
5. Construction of exclusion and contamination reduction zones for proper management of the TSCA-level sediment and debris, in compliance with TSCA and RCRA regulations, during the handling, stockpiling, and preparation for disposal process.
6. Provide site security and control of site access to the staging/processing areas during all times of active and inactive operations. This includes weekdays, weekends, holidays, and after normal work hours.
7. Performing a bathymetric survey to document the pre-dredge sediment conditions.
8. Locating in the field all utilities within dredge and staging/processing work areas.
9. Setup of a temporary and properly permitted water treatment system at the TSCA staging site.

[1] By definition, materials regulated under the Toxic Substance Control Act with greater than 50 parts per million total PCB concentrations are also classified as hazardous by the New York Environmental Conservation Law (which implements the Resource Conservation and Recovery Act). The sediments being remediated under this project are associated with waste code B007. Therefore, TSCA-level materials described within this document are also RCRA hazardous, and non-TSCA-level materials do not classify as RCRA hazardous under waste code B007.

10. Installing, maintaining, and removing silt curtains in the river when dredging in DMU 8b.
11. Monitoring of water quality at the TSCA-level sediment dredge site during all times of dredging operations.
12. Mechanical dredging of approximately 1,400 CY of non-TSCA-level sediment and 4,200 CY of TSCA-level sediment and loading the sediment into watertight barges.
13. Transporting loaded barges to the TSCA staging/processing site
14. Removing free water from the sediment and pumping it to the water treatment system.
15. Offloading and solidifying the TSCA-level sediment on an appropriate processing area and placing it in a transport.
16. Covering the truck bed and decontaminating the truck exterior before transportation.
17. Transporting the solidified sediment to a TSCA (and RCRA) -permitted landfill.
18. Debris encountered in the TSCA dredge area is to be decontaminated and disposed offsite at an approved facility.
19. Debris that cannot be decontaminated will be profiled for disposal at an approved facility.
20. Sample collection and analysis of influent and effluent samples from the temporary water treatment system.
21. Permitting and disposal of treated effluent via permitted discharge to either the Buffalo Sewer Authority or the Buffalo River.
22. Collection of post-dredge sediment confirmation samples and analysis for PCBs to determine if additional remedial dredging is necessary.
23. Performing a post-dredge bathymetric survey to document sediment removal and payment quantities.
24. Performing air monitoring at the staging/processing site during all active operations at the staging processing facility.
25. Continued performance of water quality monitoring in the river
26. Dismantling, decontamination, and removal of the temporary facilities not needed for future work followed by the site restoration at TSCA staging/processing site.

27. Performance of wipe sampling and analysis on temporary facilities and equipment to demonstrate the TSCA cleanup requirements have been achieved. Perform additional decontamination, sampling and analysis to achieve the TSCA requirements before transportation offsite.
28. Collection of post-construction samples at the TSCA staging/processing site to confirm cleanup to presite conditions.
29. Demobilization of personnel and equipment not needed for Base or Optional Work yet to be completed.

G. Type of Contract: Project will be constructed under a single prime contract.

1.05 WORK BY OWNER OR OTHERS

A. Concurrent Work: Owner or Owner's Representative will perform observation of remedial activities simultaneously with Work under this Contract.

1.06 SITE ACCESS AND WORK RESTRICTIONS

A. Project Area: Contractor shall have use of Project area (Buffalo River and Ship Canal) for remediation operations during construction period, subject to the fish spawning restrictions (no dredging or capping between December 30 and June 15 in the Buffalo River, and December 30 through June 30 in the ship canal). Contractor's use of Project area is limited by any permit restrictions and Owner's right to perform work or to retain other contractors on portions of Project. Contractor shall obtain from the NYSDEC a variance to the fish spawning restrictions for planting work of the habitat restoration work if spring conditions warrant an earlier start to the planting season.

B. CDF: The placement of material in the CDF during the month of June is restricted to avoid disturbances to bird nesting activities. Contractor's use of the CDF is additionally limited by permit restrictions established by the USACE once the application for CDF usage (provided by the Owner) is accepted. Additional restrictions on the usage of the CDF are stipulated by the MOU agreement dated January 31, 2013 between the Department of the Army and United States Environmental Protection Agency for disposal of material in the confined dredged material disposal facility at Buffalo Harbor, New York.

C. TSCA Staging Site: Use of TSCA staging site (for Option 4 Work) is subject to agreement between Contractor and property owner.

D. Work Restrictions, General: Comply with restrictions on construction operations, limitations on use of public streets, and with other requirements of authorities having jurisdiction.

E. For Work performed within the Buffalo River and Ship Canal, do not disrupt commercial boat traffic in the navigation channel.

F. For Project staging sites or other areas used for Project work that do not have site security, the Contractor is responsible for posting instructions to visitors and have sign-in sheets available and control visitor access to designated areas.

G. Maintain access to properties for property owners and emergency vehicles at all times.

H. All habitat restoration work shall be completed under reasonably dry conditions, except for planting of SAV beds which will be installed by divers working below the water surface.

I. Onsite Work Hours: Work is expected to be conducted 24 hours per day, Monday through Saturday, unless otherwise indicated. Sundays are to be reserved for maintenance work or to be used to compensate for downtime incurred during the work week.

J. Existing Utility Interruptions: Do not interrupt utilities unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner’s Representative not less than 2 days in advance of proposed utility interruptions.
2. Obtain Owner’s Representative’s written permission before proceeding with utility interruptions.

K. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

L. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site. Maintain list of approved screened personnel with Owner's Site Representative.

1.07 PROJECT PERMITS

A. Permits and Planning for the Project shall be obtained and conducted as indicated in Section 01 57 19, Environmental Controls.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 11 01
HEALTH, SAFETY, ENVIRONMENT, AND EMERGENCY RESPONSE

PART 1 GENERAL

1.01 WORK INCLUDED

A. Contractor is responsible for implementation and enforcement of health and safety requirements along with emergency response requirements, and shall take necessary precautions and provide protection for following:

1. Personnel working in or visiting Project area for the purpose of conducting Project-related activities, irrespective of employer.
2. Work and materials or equipment to be incorporated in Work areas
3. Property within the Project area.
4. Public exposed to Project-related operations.

B. Contractor is responsible for initiating, maintaining, and supervising safety precautions and programs in connection with Work.

C. Contractor shall be directly responsible for health and safety of their employees. In event of issue/emergency, Contractor shall address issue/ emergency with their personnel and support systems and provide appropriate notification to Owner's Representative and Owner.

D. Contractor's duties and responsibilities for safety in connection with Work shall continue until such time as Work is complete and Owner's Representative has issued notice to Contractor that Work is complete.

E. Contractor shall develop and implement a written Health, Safety, and Emergency Response Plan (HSERP) which, at minimum, meets requirements of this Section and complies with applicable federal, state, local and site regulations. HSERP shall be the agreed upon method for implementation and enforcement of Site safety, health, and emergency response requirements.

F. HSERP shall be submitted and reviewed by Owner's Representative before any work on jobsite can begin.

G. Payment: Work specified in this Section is considered incidental and cost shall be included as part of appropriate lump sum and unit prices specified in Compensation Schedule.

1.02 SUBMITTALS

A. Submit copies of HSERP to Owner's Representative in accordance with provisions in Section 01 33 00, Submittal Procedures.

B. Community Air Monitoring Plan (CAMP) and revisions as necessary and related information including:

1. Products and materials to be used in association with the engineering controls.
2. Personnel and accreditations in performance of the CAMP.
3. Air monitoring equipment and backup equipment to be used to support the AMP.
4. The monitoring methods and equipment for fugitive dust and odor monitoring.
5. Analytical methods to be used for the sample analyses.
6. Laboratory accreditations in the performance of the analyses to be performed under the plan.
7. Daily real-time results with equipment monitor location mapping by the next work day. Plus the inclusion of meteorological data.
8. Verbal Analytical results with 24 hours and written results in 7 days.
9. Post Construction items:
    a. Continuous air monitoring instrument records.
    b. Personal air monitoring records.
    c. Analytical air monitoring results.
    d. Equipment calibration records.
    e. Engineering control actions or corrective measures performed.

C. Submit copy of Contractor Corporate Safety Manual.

D. Submit copies of safety training records of all staff working in the Project area.

E. Submit employee drug testing compliance verification prior to beginning site work.

F. Submit activity hazards analysis (AHA) for all tasks or definable features of the work.

G. Submit formatted MSDS sheets in alphabetized binder, with table of contents, for all chemicals to be used onsite.

H. Submit equipment inspection sheets weekly.

I. Submit a minimum of one safe behavior observation (SBO) daily.

J. Contractor shall certify to Owner's Representative by weekly health and safety summary submittal from Contractor Health and Safety Officer that Contractor is in compliance with HSERP. Weekly personnel hours shall be incorporated.

K. Contractor shall be responsible for submitting name, qualifications, training records, and experience of personnel required above in accordance with following:

1. Health and Safety Coordinator (HSC) information shall be submitted to Owner's Representative at preconstruction conference and before any changes are made.
2. Health and Safety Officer (HSO) information shall be submitted to Owner's Representative at preconstruction conference and before any changes are made.
3. Safety Technician (ST) information shall be submitted to Owner's Representative at preconstruction conference and before any changes are made.

1.03 REGULATORY REQUIREMENTS

A. HSERP shall meet requirements of this Section and applicable requirements including but not limited to those contained in publications listed below.

1. Code of Federal Regulations (CFR):
   a. 29 CFR 1920, Occupational Safety and Health Administration (OSHA) Standards for General Industry
   b. 29 CFR 1910.120, OSHA Standards, "Hazardous Waste Operations and Emergency Response"
   c. 29 CFR 1910.134, OSHA Standards, "Respiratory Protection"
   d. 29 CFR 1910.1000 through 1910.1048, OSHA Standards, "Air Contaminants - Permissible Exposure Limits".
   e. 29 CFR 1910.1200, OSHA Standards, "Hazard Communication"
   f. 29 CFR 1926, OSHA Standards, "Construction Industry".
   g. 29 CFR 1926.59, OSHA Standards, "Hazard Communication Standard for Construction Industry"
   h. 6 NYCRR 370, Hazardous Waste Management System: General.
   i. 6 NYCRR 371, Identification and Listing of Hazardous Wastes
   j. 6 NYCRR 372 Hazardous Waste Management System and Related Standards for Generators, Transporters and Facilities
   k. 6 NYCRR 376 Land Disposal Restrictions
   l. New York Oil Spill Prevention, Control, and Compensation Act;

Navigation Law, Article 12; 17 NYCRR 32.3 and 32.4; New York Environmental Conservation Law (ECL) 17-1743, 40 CFR 110.10 and 117.21 and 33 CFR 126.29 and 153.203 regarding spills.

m. 49 CFR 171, Hazardous Materials Regulations: General Information, Regulations, and Definitions.
n. 49 CFR 172, Hazardous Materials Tables and Hazardous Materials Communications Regulations.
o. 49 CFR 173, Shippers - General Requirements for Shipments and Packaging.
p. 49 CFR 178, Shipping Container Specifications.
q. Other Agencies Minimum Requirements:
    1) National Institute for Occupational Safety and Health (NIOSH).
    2) OSHA.
    3) U.S. Coast Guard.
    4) U.S. Environmental Protection Agency (EPA).
    5) US Army Corps of Engineers.
    6) New York State Department of Environmental Conservation (NYSDEC).
    7) Erie County.
    8) City of Buffalo.
r. American National Standards Institute (ANSI):
    1) ANSI Z358.1, Emergency Eye Wash and Shower Equipment.
    2) ANSI Z88.2, Practices for Respiratory Protection.
    3) ANSI G-7.11, Commodity Specification for Air.
s. Comply with applicable laws and regulations of any public body having jurisdiction for safety of persons or property.

B. Other Publications:

1. American Conference of Governmental Industrial Hygienists(ACGIH) - Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, current issue.
2. (1985) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.
3. New York State Department of Health's (NYSDOH) guidance document titled 'New York State Department of Health Generic Community Air Monitoring Plan' dated May 2010.
4. NYSDEC Division of Environmental Remediation guidance policy contained in Appendix 1b of Guidance Document DER-10 titled ‘Fugitive Dust and Particulate Monitoring’.

1.04 RESPONSIBILITIES

A. Contractor shall provide services of Health and Safety Coordinator, Health and Safety Officer and Safety Technicians.

1. Health and Safety Coordinator: Designated Health and Safety Coordinator (HSC) shall be certified in comprehensive practice of industrial hygiene by American Board of Industrial Hygiene (ABIH) and have minimum of 5 years' experience in field of hazardous waste or related chemical industries. HSC must have working knowledge of state and federal occupational safety and health regulations and shall be Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP).
    a. HSC shall be responsible for development and implementation of HSERP. All site-specific health and safety training shall be approved by HSC, and initial site-specific training shall be conducted by HSC. HSC will not be required to be present at site for entire duration of Project, but must be available for consultation and/or assistance at all times throughout remedial activities.
2. Health and Safety Officer: Designated Health and Safety Officer (HSO) must have, as minimum, 3 years of onsite remedial action experience on hazardous waste site, working knowledge of state and federal occupational safety and health regulations, and formal training in health and safety. HSO also shall have experience in maintenance, calibration, and use of various air monitoring and other instruments required in this Section of these Specifications. HSO shall have demonstrable experience in implementation of personal protective equipment programs, basic knowledge of dilution ventilation systems, and be certified in First-Aid and CPR by American Red Cross or equivalent. HSO shall be assigned to site on full-time basis and report directly to HSC on matters pertaining to site health and safety, air monitoring and public protection. The HSO will be 100 percent dedicated to the project in this capacity. HSC will be responsible for day-to-day implementation of HSERP.
3. Safety Technician: Safety Technician (ST) must have 1 year of related experience and basic understanding of current health and safety regulations. In addition to site-specific training given by HSC, ST shall have had additional training in personal protective equipment and air monitoring instruments. ST also must have current certification in First-Aid and CPR (American Red Cross or equivalent). ST will be responsible for compliance with HSERP. ST shall report directly to HSO on all matters relating to onsite health and safety matters, including noncompliance with HSERP.

1.05 HSERP REQUIREMENTS

A. Contractor shall develop and implement comprehensive HSERP to ensure adequate protection for all onsite personnel, visitors and surrounding community.

B. Formal statement of qualifications and responsibilities of Contractor's health and safety personnel shall be included in HSERP. Requirements described herein shall be used as minimum outline description of HSERP. HSERP shall be site-specific and incorporate assessment of hazards associated with work. HSERP shall address not only potential chemical hazards but also potential physical and biological hazards associated with performance of work.

C. HSERP shall address following minimum subject areas in accordance with 29 CFR 1910.120(b)(4)(ii):

1. Site Description/History/Evaluation.
2. Health and Safety Organization (responsibilities, qualifications and chain of command).
3. Work Zones.
4. Site Control.
5. Hazard Assessment.
6. Training.
7. Medical Surveillance.
8. Atmospheric/Air Monitoring.
9. Standard Operating Safety Procedures, Engineering Controls and Work Practices.
10. Personal Protective Equipment.
11. Personnel Hygiene and Decontamination.
12. Equipment and Material Decontamination.
13. Emergency Equipment and First-Aid Requirements.
14. Emergency Response/Contingency Plans and Procedures.
15. Heat/Cold Stress Monitoring.
16. Hazard Communication Program, including (MSDSs).
17. Accident Prevention Plan.
18. Cutting and Welding Procedures (including hot work permits).
19. Spill Control Provisions.
20. Water/Boat Safety.
21. Drinking Water and Supplies.

1.06 HSERP ELEMENTS AND EXECUTION

A. Site Description History/Evaluation: Contractor shall briefly describe site, history, any evaluations completed with dates and type of contamination. This Section should not be more than 1 page.

B. Health and Safety Organization: Contractor shall describe health and safety organization for Project including identification of key personnel, their resumes/professional profiles, their responsibilities, and administrative flowchart or procedures for identifying problems and taking corrective actions.

C. Work Zones:

1. Contractor shall be responsible for establishing work zones where appropriate in Project areas. Work zones may be fixed locations throughout duration of job or may be adjusted as area of work activity changes. Work zones shall be defined as follows:
   a. Exclusion Zone: Initially, Exclusion Zone (EZ) will include all potentially contaminated areas of site where work is to be performed. Contractor may change Exclusion Zone with approval of Owner's Representative during progress of work; requests for such change shall be in writing and include justification.
   b. Contamination Reduction Zone: Contamination Reduction Zone (CRZ) is transition area between contaminated work area and "clean area". Distance between Exclusion Zone and Support Zone provided by CRZ, together with decontamination of works and equipment should limit transfer of potential contaminants into "clean areas". Contractor shall require personnel entering CRZ to wear personal protective equipment prescribed for working in EZ as specified in Contractor's HSERP.
   c. Support Zone: Support Zone shall be utilized by Contractor for administrative and other support functions. Examples of equipment and facilities that will be located in this area include, but are not limited to, lunch and break areas, supplies and equipment storage, parking, Contractor offices and maintenance facilities. Personnel may wear normal work clothing in this zone. Potentially contaminated clothing, equipment and materials shall not be allowed in this area prior to proper decontamination in CRZ.
2. Contractor shall mark outer limits of Exclusion Zone with high visibility markers or flagging.
3. Contractor shall be responsible for establishing means of communication between work zones, and for workers within same zone. This means of communication shall be documented in HSERP.
4. Contractor shall be responsible for security within each established work zone.

D. Site Control:

1. Contractor shall establish system to control access to Work areas where appropriate. This system shall be incorporated into layout of work zones and shall ensure that only authorized persons enter site.
2. Contractor shall keep daily sign in/out logs for all "work zones". Daily sign in/out logs shall be submitted to Owner's Representative weekly.

E. Hazard Assessment: Purpose of hazard assessment is to provide information necessary for selecting personal protective equipment, establishing air monitoring requirements and determining health and safety procedures necessary to protect all onsite personnel, environment and public.

1. Qualitative evaluation of chemical hazards shall be based upon following:
   a. Nature of potential contaminants.
   b. Locations of potential contaminants Project site.
   c. Concentrations of contaminants.
   d. Potential for personnel/public exposure during various site activities.
   e. Effects of potential contaminants on human health.
   f. Physical work area (water and railroad).
2. Biological Hazards: Contractor shall assess potential biological hazards this site may pose to personnel.
3. Physical Hazards: Contractor shall assess potential for physical hazards present at site and those that may develop as result of remedial activities (e.g. water and railroad).

F. Training:

1. General: Contractor shall certify that all personnel assigned to work on jobsite have received required level of training. Those individuals who regularly enter areas of site other than Support Zone for purpose of performing or supervising work, for health or safety functions, for equipment maintenance, or for any other site-related function shall have received appropriate safety training in accordance with 29 CFR 1910.120 and other appropriate training. Training shall consist of a minimum of 40 hours initial instruction and 3 days onsite experience under direct supervision of experienced supervisor. For equipment operators minimum of 24 hours of instruction offsite and minimum of 1 day actual field experience in addition to equipment specific training. HSERP shall describe training required for each identified job task. In addition, Contractor's supervisory personnel shall have minimum of 8 hours additional, specialized training on managing hazardous waste operations.

2. Site-Specific Training: All personnel assigned to or entering contaminated areas of site shall complete site-specific training. Purpose of this training is to ensure personnel are familiar with content of HSERP and general site procedures. This training shall be conducted by HSC and HSO. Contractor shall notify Owner's Representative at least 2 working days prior to initial site-specific training session so that Owner's Representative's and other contracted personnel may attend. Follow-up site-specific training sessions for new personnel or visitors shall be conducted by HSC and HSO.
3. Follow-Up Training: "Tail Gate" safety meetings shall be held daily prior to start of work to discuss safety practices related to ongoing work. Should operational change affecting onsite field work be made, or prior to commencement of new tasks, meeting prior to implementation of change or new task shall be convened to explain health and safety procedures and requirements. Prior to initiating nonroutine or new task in any restricted area, HSO shall present health and safety practices and training for operation(s) to persons responsible for accomplishing activity.
4. Refresher Training: All personnel working at this site shall receive minimum of 8 hours per year of refresher training as required by 29 CFR 1910.l20(e)(4).
5. Records: Contractor shall keep copies onsite of records for all training periods, documenting date, attendance and topics covered. Additionally, Contractor shall be responsible for ensuring that only personnel successfully completing required training are permitted to work on jobsite. Training records shall be submitted to Owner's Representative minimum of 1 week in advance of personnel working on jobsite. Training record updates shall be submitted to Owner's Representative monthly.
6. Emergency Medical Care: Contractor shall establish emergency routes and communications with health and emergency services.
7. Recordkeeping: Contractor shall maintain and preserve medical records in accordance with requirements of 29 CFR 1910.1020. Access to employee medical records shall also be in accordance with 29 CFR 1910.1020 and 1926.33.

G. Personal Air Monitoring: Personal Air Monitoring procedures and action levels will be identified in Contractor's HSERP.

H. Standard Operating Safety Procedures, Engineering Controls and Work Practices: Contractor shall develop, implement and enforce safe work practices and Engineering safeguards for work covered under these Specifications. General health and safety directives for conducting onsite work which shall be included in HSERP and enforced during site activities include, but are not limited to:

1. Eating and smoking shall be restricted to designated areas.
2. Wearing contaminated protective apparel in any area other than CRZ or EZ shall be prohibited.
3. Buddy system shall be implemented for all work in Exclusion Zone.
4. Contractor shall provide emergency showers and emergency eye washes which conform to requirements of ANSI Z358.l-2004.
5. Contractor shall develop procedures which addresses potential of equipment coming into contact with overhead hazards such power transmission lines or cables.
6. Contractor shall implement protocols for unloading and loading materials. These protocols shall include DOT requirements covering such items as grounding, placarding, driver qualifications and use of wheel locks/chocks. Operation of heavy equipment at site shall be in accordance with OSHA 29 CFR 1926.
7. For work conducted during times other than during daylight hours, there shall be a minimum of 30 foot-candles of light at working surfaces. Lighting installed for purposes of working at night shall meet requirements of OSHA 29 CFR1910.120(m). Any lighting required shall provide required 30 foot-candles at working area.

I. Personal Protective Equipment: Contractor shall provide Project personnel with safety equipment and protective clothing as specified in HSERP.

1. Skin Protection: Contractor shall provide and maintain all required protective clothing, including but not limited to hard hats, coveralls, boots, gloves, and other necessary items which are protective against and resistant to chemicals at site.
2. General Exclusion Zone Requirements: Employees who have been working with contaminated materials or in contaminated environment shall remove all protective and work clothing and shower before changing into street clothes and leaving site. Prior to eating lunch and taking breaks, personnel leaving Contamination Reduction Zone shall wash their hands, face and exposed skin areas. All protective equipment shall be selected by Contractor’s HSC and shall be resistant to degradation and permeation of site chemicals. Openings (wrists and ankles) shall be taped.

3. HSC shall evaluate work conditions and determine effectiveness of protective equipment and when upgrades/downgrades in levels of protection are appropriate. Any diversions from personal protective equipment levels listed in HSERP shall be provided in writing with justification for change to Owner's Representative for approval. Tyvek coveralls should be anticipated for any intrusive work while working within excavations or in intimate contact with site soil. General requirements for anticipated level of protection are defined as follows:
   a. Level D:
      1) Coveralls and/or Tyvek.
      2) Safety boots/shoes.
      3) Safety glasses or chemical splash goggles with side shields.
      4) Hard hat.
      5) Hearing protection (as needed).
      6) Gloves (chemical-resistant and work gloves).
      7) Reflective safety vest.
4. Task-Specific Levels of Protection: Contractor shall indicate in HSERP levels of protection required to perform specific tasks. Contractor also shall describe in HSERP methods and protocols that will be utilized to upgrade/downgrade levels of protection for each task. Based upon known chemicals and their concentrations at site, all remedial activities are anticipated to require Level D protection under this Contract.
5. Working On or Near Water: When work is performed adjacent to or on water, personnel will wear United States Coast Guard approved life vests.

J. Personnel Hygiene and Decontamination:

1. Personnel Decontamination Area: Contractor shall provide Personnel Decontamination Area in Contamination Reduction Zone where surface contamination and outer protective clothing can be removed. Area shall provide workers protection from weather. This area shall include provisions for washing contamination and mud from boots and protective clothing.
2. Work Area Change Rooms: Contractor shall provide Work Area Change Rooms in accordance with 29 CFR 1910.120(n)(7)(i-iv) which meets requirements of 29 CFR 1910.141. This shall include change areas separated by shower facilities. These areas shall include benches and tables needed for changing clothes. One change room, with exit leading off site, shall provide clean area where employees can remove, store and put on street clothing. This area shall have lockers for each employee to securely store personal items.

3. Shower Room: Contractor shall provide, supply and maintain shower room which meets requirements of 29 CFR 1910.141(d)(3)(4). Soap, washcloths and towels shall be provided to all personnel required to shower.
4. Lunch Room: Contractor shall provide lunch room for all site personnel. This area shall be furnished with benches and tables. This area will be free of contamination and be kept in clean and sanitary condition. Area shall be cooled/ heated dependent on season.
5. All areas described above shall be lighted in accordance with minimum requirements defined in 29 CFR 1910.120(m), Table H-120.1.

K. Equipment and Material Decontamination:

1. Contractor shall build an Equipment Decontamination Area in Contamination Reduction Zone. Purpose of Equipment Decontamination Area is to capture and prevent spread of site contaminated material, invasive species, and viruses from leaving Contamination Reduction Zone and Exclusion Zones.
2. In addition to capturing contaminated solids (sediment, soil, debris, etc.) and invasive species and viruses, water/detergent solution (rinsate) generated when cleaning contaminated equipment must also be captured and not allowed to contaminate area surrounding Equipment Decontamination Area.
3. Equipment Decontamination Area may include, but is not limited to following:
    a. Installation of concrete pad for contaminated equipment (Decontamination Pad) designed appropriately for both TSCA-level and non-TSCA-level materials.
    b. Installation of rinsate collection system (sumps, tanks, pumps, etc.).
    c. Secondary containment around collection system.
    d. Installation of absorbent booms along edge of secondary containment.
    e. Installation of plastic liner around secondary containment (with curbing or sloping to prevent runoff).
    f. Installation of drainage system for secondary containment
    g. Installation of cover to preclude treatment of noncontaminated rain water.
    h. Freeze protection.
4. Spent rinsate solution and contaminated liquids shall be collected and transferred to water treatment system.
5. Contaminated solids and solids collected in decontamination area shall be transferred to soil stabilization area and added to stabilized dredged materials.

6. Contractor shall include design details for Equipment Decontamination Area in this Section of HSERP.
7. Information required should include, but not necessarily be limited to following:
    a. Scaled map showing location of decontamination area.
    b. Materials of construction data.
    c. Liner specifications.
    d. Method of rinsate collection.
    e. Decommissioning procedures.
8. Contractor shall address their plans for dealing with these issues in this Section of HSERP.
    a. Contractor shall develop set of protocols and procedures for equipment decontamination that will be utilized to prevent spread of contamination into Support Zone and offsite area.
    b. Contractor shall decontaminate all equipment used for the Project including, but not limited to, trucks, barges, boats, silt or turbidity curtains, hoses, sheet pile and pumps, prior to bringing equipment onsite.
    c. Designated clean area shall be established in Contamination Reduction Zone for performing equipment maintenance. This area shall be used when Contractor personnel are required to perform maintenance on equipment. All equipment within Exclusion Zone or Contamination Reduction Zone shall be decontaminated before maintenance.
    d. All items taken into Exclusion Zone must be assumed to be contaminated and shall be decontaminated and inspected before leaving Contamination Reduction Zone. All contaminated vehicles, equipment and materials shall be cleaned and decontaminated to satisfaction of Owner’s Representative prior to leaving site.
    e. The following steps shall be taken every time equipment is relocated to a new water body to avoid transporting invasive species and viruses. To the extent practicable, equipment and gear used on infested waters should not be used on other noninfested waters.
        1) Inspect and remove aquatic plants, animals, and mud from equipment.
        2) Drain water from equipment including, but not limited to, tracked vehicles, barges, boats, silt or turbidity curtains, hoses, sheet pile and pumps.
        3) Dispose of aquatic plants, animals in the trash. Do not release or transfer aquatic plants, animals or water from one water-body to another.

4) Wash equipment with hot (> 104 degrees F) and/or high pressure water OR allow equipment to dry thoroughly for 5 days.

f. Decontamination shall occur on equipment decontamination pad and shall consist of solids material removal (if required) followed by cleaning with high pressure water and/or steam amended with detergents or solvents as appropriate. Particular attention shall be paid to removal of material on and within undercarriage, tracks and sprockets of crawler equipment, and tires and axles of trucks and rubber-tired mounted equipment.

g. Tools and items for which decontamination is difficult or impossible to verify shall remain onsite, until completion of work, for subsequent packaging and disposal by Contractor at secure landfill with current permit to accept wastes generated at site. Examples of such wastes include, but are not limited to, wire, rope and lumber.

h. Upon completion of equipment decontamination, equipment decontamination pad shall be thoroughly washed down and sediments removed from collection sump for disposal.

i. Decontamination of equipment used for TSCA-level materials shall follow the TSCA Monitoring Plan and associated site specific plans.

j. At completion of Project, equipment decontamination pad shall be properly decontaminated to satisfaction of Owner's Representative.

L. Decontamination Pad: HSERP shall present information regarding decontamination pad design. Information shall include but not necessarily be limited to following:

1. Scaled map showing location of pad.
2. Discussion on intended use of pad.
3. Plan drawing illustrating major features of pad.
4. Summary of materials used for construction of pad.
5. Method of rinsate and/or particulate waste collection and disposal.
6. Decontamination procedures.
7. Maintenance of pad (inspections and repairs).
8. Description of pad materials testing and decommissioning (removal) procedures.

M. Decontamination Pad Design:

1. Following are important design aspects of decontamination pad design:
   a. Pad shall be able to bear load of equipment to be decontaminated and shall be of sufficient size to accommodate largest piece of

equipment plus an appropriate space for conducting decontamination activities.

b. Pad shall be designed to capture all rinsate generated and prevent release of contaminants to environment. This may include shielding to protect from wind dispersion, overspray, and precipitation events.

c. Pad shall be designed in manner that will prevent damage from intended use and be sufficient to last through entire scope of work with minimal maintenance.

d. Pad shall be designed for eventual decontamination, demolition, and removal in mind.

2. Basic Decontamination Pad Design: Contractor shall include design drawing of Decontamination Pad in this Section of HSERP.

3. Engineered Sub-Base: "Engineered Sub-Base" is constructed foundation for pad.

4. Concrete or Asphalt Pad: "Concrete or Asphalt Pad" is working surface for decontamination. "Concrete or Asphalt Pad" design shall include but not necessarily be limited to following:

   a. Material: Concrete or asphalt mixture shall be such that cracking is limited to surface cracks.

   b. Finish: Surface shall be finished to minimize slipping under wet conditions, and allow for drainage to sump.

   c. Sealing: Sealant shall be applied to minimize likelihood that concrete or asphalt becomes contaminated with contaminants of concern.

   d. Slope: Pad shall be sloped so that all liquids drain to sump.

5. Containment: In order to prevent rinsate from escaping into surrounding area, decontamination pads are typically equipped with curbs and/or walls, including water stops.

   a. Material: Containment curbs/walls shall be constructed from concrete.

   b. Height: Containment curbs/walls shall be sufficient height to collect all of decontamination liquid necessary to thoroughly clean larges piece of equipment plus 25 percent.

   c. Sealing: Containment curbs/walls shall be sealed same as Pad, (particularly) where they interface with Pad.

6. Sump: Sump shall be incorporated into pad design. Sump shall be situated at lowest point of pad to collect rinsate and/or rainwater. It shall be designed for installation of pump, and incorporate means for precluding collection of solids. Sump should be easily accessible for an occasional sediment cleanup. If pad is not covered, pad/ sump should provide enough storage capacity to accommodate significant storm event. Since liquid head could temporarily build up, walls and bottom of sump should be made impermeable.

7. Enclosure (Roof and Walls): “Enclosure” that provides splash protection, rain protection, and or freeze protection shall be considered for Decontamination Pad.

N. First-Aid Provisions and Emergency Equipment:

1. Fire Extinguishers: Type and number of fire extinguishers shall be determined by Contractor and submitted as part of HSERP. Inspection and maintenance shall be responsibility of Contractor. As minimum, two 20-pound A, B, C fire extinguishers shall be located at entrance to Exclusion Zone, at entrance of each enclosure in work zone, and in Support Zone. Other fire stations equipped with appropriate type and size of fire extinguishers shall be established by Contractor as needed. These stations shall be clearly marked and identified in HSERP. All combustible or flammable materials used onsite shall be stored in Underwriter's Laboratory (UL) listed and/or Factory Mutual (PM) approved containers. Each vehicle will have approved, inspected portable fire extinguisher.
2. Emergency Eye Wash: At minimum, Contractor shall provide and maintain I5-minute free-flow capacity Contractor emergency eye wash unit. This unit may be part of emergency shower specified above and shall be located in Contamination Reduction Zone. Contractor shall establish additional eye wash stations at any area where caustic or corrosive materials will be used. Locations of stations shall be identified in HSERP and identified to onsite personnel during site health and safety training. Emergency eye wash units shall meet requirements specified in ANSI Z358.1-1981. Each vehicle will have portable eye wash.
3. First-Aid Kits: Contractor shall provide and equip first-aid kits with supplies applicable to scope of work. HSERP shall list contents of First-Aid Kits. At minimum, Contractor shall provide first-aid kits at clearly designated locations in Contractor’s offices and at entrance to Contamination Reduction Zone. Location of first-aid stations shall be identified in HSERP. Each vehicle will have first-aid kit.

O. Emergency Response/Contingency Plans and Procedures:

1. Contractor shall develop emergency response and contingency plan for onsite and offsite emergencies in accordance with 29 CFR 1910.120(1) which meets requirements of 29 CFR 1910.120(p)(8). This plan shall, as minimum, address following:
   a. Pre-emergency planning.
   b. Personnel roles, lines of authority, training and communication.
   c. Emergency recognition and prevention.
   d. Safe distances and places of refuge.

e. Evacuation routes and procedures.
f. Emergency decontamination.
g. Emergency medical treatment and first-aid.
h. Emergency alerting and response procedures.
i. PPE and emergency equipment.
j. Critique of response and follow-up.

2. In event of any emergency associated with remedial activities, Contractor shall without delay: take diligent action to mitigate cause of emergency, alert Owner's Representative, and institute whatever measures might be necessary to prevent any recurrent of conditions or actions leading to or resulting in emergency.
3. Emergency medical care services shall be prearranged at a medical facility in Buffalo. Staff at facility shall be advised of potential emergencies that might result.
4. Contractor shall establish emergency communications with health and emergency services. Name of these facilities, points of contact, emergency routes and communications arrangements shall be included in Contractor's HSERP. Contractor shall post list of all phone numbers that may be used for emergency communications. As minimum, this list shall include following information and telephone numbers:
   a. Procedure for prompt notification of New York State Department of Environmental Conservation, EPA, National Response Center and Owner's Representative.
   b. Any other telephone numbers that may be needed in emergency.
   c. Location of emergency showers and eye washes.
   d. Location of first-aid stations.
5. In event of accident or some other incident, Owner's Representative shall be notified immediately and receive written notification within 24 hours. Report shall include following items:
   a. Name, organization, telephone number and location of Contractor.
   b. Name and tile(s) of person(s) reporting.
   c. Date and time of accident/incident.
   d. Location of accident/incident (i.e., site location, facility name).
   e. Brief summary of accident/incident giving pertinent details include type of operation ongoing at time of accident/incident.
   f. Cause of accident/incident, if known.
   g. Injuries.
   h. Details of any chemical hazard or contamination resulting from accident/incident.
   i. Estimated property damage, if applicable.
   j. Nature of damage; effect on Project schedule.
   k. Action taken by Contractor to ensure safety and security.
   l. Other damage or injuries sustained (public or private).

6. Fires: As part of HSERP, Contractor shall describe procedures, equipment and personnel for responding to fires and potential explosion at site. Contractor will provide training records for personnel who are designated to fight fires.
    a. Small Fires: Small is defined as fire that can be extinguished with available fire extinguishers required under other paragraphs of this Section. In event of small fire at site, Contractor and his designated fire control personnel shall take following action:
        1) Evacuate all unnecessary personnel from area to upwind location.
        2) Attempt to extinguish fire using portable fire extinguishers or by smothering.
        3) Fire control personnel shall wear appropriate personal protective equipment when responding to fire.
        4) Request emergency response assistance as needed for any injuries or exposures to hazardous chemicals
        5) Notify Owner's Representative and Owner of incident.
    b. Large Fires: In event of large fire or fire which cannot be extinguished with onsite personnel and equipment, Contractor shall take following minimum actions:
        1) Evacuate all unnecessary personnel from site to upwind location.
        2) Take any appropriate actions to ensure safety of onsite personnel and public.
        3) Notify Owner's Representative and Owner.
7. First-Aid:
    a. Physical Injury:
        1) For minor injuries, routine first-aid procedures shall be administered by individual(s) certified in first-aid.
        2) For major injuries, onsite personnel shall attempt to stabilize victim and perform any decontamination possible that does not compromise condition of injured person or others. Onsite personnel shall be prepared to provide paramedics with information about accident and/or chemical exposure if applicable.
    b. Chemical Injury:
        1) Appropriate personal protective equipment shall be worn when treating victim(s).
        2) Victim's vital signs and severity of exposure shall be assessed. Ambulance should be called and hospital should be notified of type of injury that is being brought to them for emergency treatment.
        3) Victim shall be removed to fresh air and resuscitated if necessary.

4) If clothing is chemically contaminated and injuries permit, clothing shall be removed and skin flooded with copious amounts of water.
5) If eyes are contaminated, they shall be irrigated immediately with copious amounts of water for at least 15 minutes and preferably until victim can be transported to hospital.
6) If appropriate, Poison Control Center should be contacted for technical advice and assistance.

P. Heat/Cold Stress Monitoring:

1. Heat Stress Monitoring: Nature of work combined with use of protective equipment may create heat stress. To prevent heat stress and to monitor body's recuperative abilities to excess heat, one or more of following techniques shall be used. Monitoring of personnel wearing impervious clothing shall commence when ambient temperature reaches 70 degrees F. Monitoring frequencies shall increase as temperatures increase or when employees show slow recovery rates. Monitoring shall be performed by person with current first-aid certification and specific training in recognition of symptoms of heat stress. Heat stress physiological monitoring shall include, but not be limited to following:
   a. Heart rates.
   b. Body temperature.
   c. Body water loss.
2. Contractor’s Health and Safety Coordinator (HSC) shall specify work cycle period and rest period based upon ambient temperatures and heat stress monitoring. Work/rest schedules and action levels at which corrective action shall be taken shall be addressed in Contractor’s HSERP.
3. Cold Stress Monitoring: To protect against cold-related injuries, Contractor shall provide appropriate clothing, shelter for rest periods and written procedures which protect employees from potential cold-related injuries and stress. As minimum, Contractor shall follow recommendations in American Conference of Governmental Industrial Hygienists Threshold Limit Values for Physical Agents in Work Environment.

Q. Hazard Communication Program: Hazard Communication Program: Contractor’s HSERP shall include hazard communication program for all chemicals brought onto site by Contractor and any contracted personnel. All chemicals which are considered hazardous by 40 CFR shall be correctly labeled, and workers shall be trained on hazard of chemical before using it. Contractor shall maintain copy of all Materials Safety Data Sheets in Support Zone for all such chemicals; these documents shall be readily available to Owner’s Representative and other site personnel upon request. All MSDSs

will be provided to Owner's Representative for approval minimum of 1 week before material is brought onsite.

R. Accident Prevention Plan: Contractor shall submit as part of HSERP an Accident Prevention Plan (APP). APP shall include accident prevention policy to be followed by Contractor and contracted personnel during construction and remedial action activities. Contractor shall be responsible for implementation of APP by all Contractor and contracted personnel. Accident Prevention Plan shall address, at minimum following items:

1. Safety hazards associated with work activities and preventive measures to be implemented.
2. Personnel responsibilities.
3. Safety procedures.
4. Contractor supervision.
5. Safety meetings.
6. Fire prevention and protection.

S. Cutting Brazing and Welding Procedures: Cutting, brazing and welding operations shall not be conducted without hot work authorization permit from HSO per OSHA requirements. Contractor shall list requirements for obtaining hot work permit. HSO shall notify Owner's Representative of all hot work and provide copy to Owner's Representative to obtain Owner's Representative's authorization before commencing any such activity. As minimum, requirements shall be in compliance with regulations specified in 29 CFR 1910.252 and these Specifications. This requirement applies to welding, grinding, sawing or other similar operation which could be expected to potentially generate combustion-producing temperatures or sparks, or which could evolve potentially hazardous fumes or vapors. Contractor shall designate individual as fire watch during and after all hot work activities. This person's sole responsibility shall be to monitor hot work and have immediate access to fire extinguishers.

T. Spill Control Provisions:

1. Contractor shall have available provisions for dealing with spills. As part of HSERP Contractor shall provide their procedures or dealing with spills, including upland spills or marine spills.
2. Contractor must comply with New York Spill Prevention, Control, and Compensation rules if greater than 1320 gallons of oil storage capacity is provided by Contractor,
3. Contractor to ensure compliance with any and all applicable US Coast Guard, Federal , and state marine spill containment and collection provisions.

4. Provide for unexpected spills through provision of following minimum equipment to be kept onsite and/or on barge if part of installation is performed from marine-based equipment at all times during site work activities.
   a. One front end loader, if used for other work such as drum moving (not required on barge).
   b. Ten drums (55 gal, U.S. DOT 17-E or 16-H).
   c. Three hand shovels.
   d. Sorbant pads, containment booms, and other cleanup materials.
   e. Other decontamination supplies and equipment for decontamination of tools and equipment.
   f. Small skiff/boat with life vests and marine spill equipment if materials discharge to sewer or river, or if spill occurs from barge, boat, or marine-based equipment.
   g. Other appropriate materials for use in river with commercial boat traffic.
5. Spills: If spill occurs, take following actions:
   a. Immediate action to stop spill and protect/decontaminate affected personnel.
   b. Implement appropriate action as called for in Safety Health and Emergency Response Plan (HSERP) and any other applicable site specific plans such as SPCC Plan.
   c. Take measures to control, confine, and clean up spill.
   d. Notify Owner's Representative.
6. Spill cleanup plans and remedies shall be developed and implemented by Contractor as approved by Owner's Representative.
   a. Recovered liquids may be handled and disposed of offsite in accordance with all applicable regulations.
   b. Remove contaminated soils onsite to depth of up to 1 foot or to depth to remove spilled materials, drum, and handle as specified in HSERP. Excavation to less than 1 foot shall be at Owner's Representative discretion and will require sampling and analysis of residual samples. Excavation shall be restored to approximately original grade with clean fill material.
   c. Spilled flowing oils will be stopped immediately and shall be drummed or placed in tankage and handled as specified for liquid wastes in HSERP.
   d. Decontaminate onsite structures to remove traces of spilled material.
   e. Spilled solids shall be completely recovered, drummed, and handled as specified in HSERP.
   f. If spill or other emergency event occurred for reasons beyond control and responsibility of Contractor as determined by Owner's Representative, adjustment in price will be considered.

U. Water/Boat Safety: Personnel associated with Water/Boat safety will be required to wear personal floatation devices (PFDs). Life vests must be Coast Guard approved and marked for its appropriate use as life vest. Also pay particular attention to structural integrity of docks, piers, and working surfaces. All walking and working surfaces shall be maintained in good repair. Additionally, employees should have appropriate work boots with cleated soles for greater traction.

V. Drinking Water and Supplies:

1. Contractor shall provide bottled water (individual size bottles) for their employees working onsite.
2. Water shall be provided and placed in locations readily accessible to all employees. Water shall be suitable cool and in sufficient amounts, taking into account air temperature, humidity, and nature of work performed, to meet needs of all employees.

1.07 COMMUNITY AIR MONITORING PROGRAM

A. General:

1. The Contractor shall develop a site specific Community Air Monitoring Program (CAMP) or plan for the TSCA dredge material staging, processing, and off-site transportation area operations. The purpose of the CAMP is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences, businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct results of the remedial and waste processing work activities. The CAMP shall, as a minimum comply with the requirements as provided in parts 2.1 and 2.2 of the TSCA Monitoring Plan and shall satisfy the New York State Department of Health's (NYSDOH) guidance document titled 'New York State Department of Health Generic Community Air Monitoring Plan' dated May 2010 and the NYSDEC Division of Environmental Remediation guidance policy contained in Appendix 1b of Guidance Document DER-10 titled ‘Fugitive Dust and Particulate Monitoring’
2. Provide all personnel, equipment, analytical testing, facilities, and supplies to develop and implement the air monitoring program and engineering controls described in CAMP. Equipment shall include at a minimum real-time aerosol monitors, depending on remedial work activities and environmental conditions.
3. Provide both real time and documentation air monitoring (personal and area sampling as needed). The purpose of real time monitoring will be to determine if an upgrade (or downgrade) of PPE is required while performing on site work and to implement engineering controls,

protocols, or emergency procedures if established action levels are encountered.

4. Performance of community documentation monitoring to determine if contaminants are migrating to off-site receptors and the provisions to enact engineering controls to reduce the off-site contamination. Real-time documentation monitoring shall include the collection and analysis of samples for total nuisance dust and VOCs and the analyses of PCBs in air.
5. During the progress of active staging and processing of dredging materials work, monitor the quality of the air in and around the active processing operations and near community receptors with real time instrumentation. Sampling at the material staging and active process work areas site will be conducted on a continuous basis. Any departures from general background will be reported to the Contractor's Safety Officer (SO) prior to entering the area. The SO will determine the type of engineering controls should be performed and if the material staging, processing, or transportation operations should be shut down.
6. To protect the public in the neighboring residential neighborhood, the CAMP must include provisions for suspending work and/or implementing engineering controls based upon detectable odors, visible dusts, or elevated levels of particulates and contaminants, based upon the real-time instrument monitoring information and analytical results.
7. Air monitoring (both real time and documentation monitoring) shall be conducted by a minimum of one dedicated personnel with communication to the site superintendent, whenever intrusive activities (such as off-loading, material / debris segregation, dewatering, sediment stabilization, waste loading operations, decontamination operations, and waste transportation) are performed in an exclusion zone. After completion of intrusive activities involving contaminated materials and removal of the exclusion zone and contamination reduction zones, air monitoring may be discontinued.
8. Air monitoring equipment will be operated by personnel trained in the use of the specific equipment provided and will be under the control of the Contractor's Site Safety Officer. A log of the location, time, type and values of each reading and/or sampling will be maintained. Copies of all log sheets, charts, electronic documentation, etc. from the air monitoring operations will be provided on a daily basis to the Site Representative.

B. VOC Monitoring, Response Levels, and Actions:

1. Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the staging/processing area on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to

establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

2. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
3. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
4. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
5. All 15-minute readings must be recorded and be available for the Site Representative or agencies (New York State Department of Health (NYSDOH or NYS Department of Environmental Conservation NYSDEC) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

C. Particulate Monitoring, Response Levels, and Actions: Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-

minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.
3. All readings must be recorded and be available for agency review if requested.

D. PCB Monitoring, Response Levels, and Actions

1. PCB air monitoring at the perimeter of the active operations will be accomplished with both active samples for laboratory analysis as well as real-time particulate monitoring.
2. The Total PCB Action Limit is 0.11 ug/m3.

E. Air Monitoring Equipment and Products

1. Real-time monitoring shall be conducted using the following equipment:
2. Organic vapor photoionizers shall be Photovac TIP, total organic vapor analyzer as manufactured by Photovac International, 739B Park Avenue, Huntington, New York 11743 or equal. Provide one Photovac TIP for each and every hazardous work zone operation.
3. Particulate monitoring must be performed using real-time particulate monitors (MiniRam Model MIEPDM-3, or equal) and shall monitor particulate matter in the range of 0-10 microns diameter (PM10) with the following minimum performance standards:
   a. *Object to be measured:* Dust, Mists, Aerosols, VOCs, and PCBs in air.
   b. *Measurement Ranges:* 0.001 to 400 mg/m^3 (1 to 400,000 $\mu g/m^3$)
   c. *Precision (2-sigma) at constant temperature:* +/- 10 $\mu g/m^3$ for one second averaging; +/- 1.5 $\mu g/m^3$ for sixty second averaging
   d. *Accuracy:* +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 µm, g= 2.5, as aerosolized)
   e. *Resolution:* 0.1% of reading or 1 $\mu g/m^3$, whichever is larger
   f. *Particle Size Range of Maximum* Response: 0.1-10 µ
   g. *Total Number of Data Points in Memory:* 10,000

h. *Logged Data:* Each Data Point: average concentration, time/date, and data point number
i. *Run Summary:* Overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number.
j. *Alarm Averaging Time (user selectable):* real-time (1-60 seconds) or STEL (15 minutes)
k. *Operating Time:* 48 hours (fully charged NiMH battery); continuously with charger
l. *Operating* Temperature: -10 to 50EC (14 to 122EF)

F. Automatic alarms are suggested.

G. Particulate levels will be monitored and integrated over a period not to exceed 15 minutes. Consequently, instrumentation shall require necessary averaging hardware to accomplish this task. A monitor such as the personal DataRAM, manufactured by Monitoring Instruments for the Environment, Inc., or equivalent, can be used as a real time particulate screening tool. Although the instrument=s design does not allow it to make a sharp differentiation of particulates at the PM10 standard, the instrument could be used in the passive mode without a pump to provide readings in the 0.1 to 10µ range in the immediate vicinity of construction activities.

H. Particulate levels will be monitored and integrated over a period not to exceed 15 minutes. Consequently, instrumentation shall require necessary averaging hardware to accomplish this task. A monitor such as the personal DataRAM, manufactured by Monitoring Instruments for the Environment, Inc., or equivalent, can be used as a real time particulate screening tool. Although the instrument=s design does not allow it to make a sharp differentiation of particulates at the PM_{10} standard, the instrument could be used in the passive mode without a pump to provide readings in the 0.1 to 10µ range in the immediate vicinity of construction activities.

I. Analytical Methods:

1. Collect total nuisance dust using PVC collection filter and personnel sampling pump and analyze gravimetrically according to NIOSH 89-127 Method 0500.
2. The total PCB concentrations in air will be evaluated using samplers consisting of a glass fiber prefilter followed by a Florsil sorbent tube. The sampling media will be used to actively collect and air sample at one liter per minute for 24 hours to be analyzed by a laboratory capable of reaching a 100 ng/m^3 detection limit using NIOSH Method 5503.

J. Real-Time Monitoring:

1. The Contractor shall submit a written copy of the real time air monitoring results for each Workday, by 10:00 a.m. the following Workday, which shall include an appropriately scaled map of the Work area depicting sample locations, wind direction and other pertinent meteorological data: date; time; analytical results; applicable standards and engineering controls implemented (if necessary).
2. Monitor the air, using the same equipment, for 10-15 minutes upwind of the work site to establish background level. The background level shall be established before the start of each shift every day. In the event that downwind particulates are detected at levels in excess of 150 ug/m^3 or 2.5 times the established background level at the work site, re-measure the background concentrations upwind of the work zone using the same equipment. If the measured particulate level at the work zone is 100 ug/m^3 above background, monitor the downwind site perimeter and implement additional dust controls in the work zone. Continue to take hourly measurements of the upwind background concentrations and compare such concentrations with the particulate level at the work zone, until the downwind level at the work zone is less than 100 ug/m^3 above the upwind level. If at any time the measured particulate level at the work zone is more than 150 ug/m^3 over background concentration, the Contractor shall immediately suspend work at the site, promptly notify the Site Safety Officer, and implement suitable corrective action or engineering controls before work resumes.
3. Real-time monitoring will be conducted at the staging/processing area. Real-time monitoring will be conducted at perimeter locations including an upwind (background) and three downwind locations. A background reading will be established daily at the beginning of the work shift. If the wind direction changes during the course of the day, a new background reading will be made. Downwind readings at the perimeter will be made when action levels have been exceeded at the staging/processing area or at a minimum of twice a day.
4. If action levels are exceeded at the perimeter location for fugitive dust, work must be suspended and engineering controls must be implemented to bring concentrations back down to acceptable levels.
5. Processing activities generate dust which could potentially transport contaminants off site. There may be situations when visible dust is being generated and leaving the site and the monitoring equipment does not measure PM_{10} at or above the action level. Therefore, if visible dust is observed leaving the working site, additional dust suppression techniques must be employed.

K. Documentation Monitoring: Documentation monitoring will be conducted at the perimeter at a minimum of four locations (one upwind and three downwind) for total dust. Documentation monitoring will be conducted only during excavation, consolidation, staging, removal, or decontamination activities (i.e., intrusive activities).

1. Documentation samples will be collected at established perimeter locations. The four locations will be chosen according to site activities and expected wind direction.
2. The perimeter locations will be established and marked with high visibility paint or flagging at approximately equidistant points around the site. Samples will be collected at a height of 6 feet above ground surface.
3. Documentation samples will be collected continuously, during the normal work hours when activities are occurring on site. At the end of the week, one days worth of sampling (i.e. three downwind locations and one upwind location) will be selected by the Site Representative for analysis by the Contractor.
4. The documentation samples will be collected over an eight (8) hour work period.
5. In addition to perimeter monitoring, personnel documentation samples will be collected on site once a week. On-site samples will be collected by choosing “high risk” workers to wear appropriate collection media for pesticides, metals, and particulate. High risk workers are those who are most likely to encounter contamination on a particular task. Two high risk workers will be chosen to wear collection media for a day each week (i.e., two samples per week) and the media will be analyzed with the documentation air monitoring samples.
6. Provide a written copy of the documentation air monitoring results within 7 days of sampling, which shall include an appropriately scaled map of the Work area depicting sample locations, wind direction and other pertinent meteorological data: date; time; analytical results; applicable standards and engineering controls implemented (if necessary).
7. The documentation sampling submitted shall also identify the high risk workers chosen to wear appropriate collection media for contaminants; date media was worn; task involved; analytical results and applicable standards.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment, including the following:

1. Schedule of Values.
2. Applications for Payment.

B. Related Requirements: Section 01 32 00, Construction Progress Documentation, for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.02 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment. Quantities and unit prices may be included in the schedule when approved by or required by the Owner’s Representative.

1.03 SCHEDULE OF VALUES

A. Preparation: Submit to the Owner’s Representative for acceptance a Schedule of Values that allocates costs to each item of the Work. Schedule of Values list of line items shall correspond to each aspect of the Work, establishing in detail the portion of the Contract Price allocated to each major component of the Work. Each line item should include the associated costs for labor, equipment, materials, subcontractors and other costs. Upon request of Owner’s Representative, additional information may be requested to support values with data that substantiate their correctness.

B. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's construction schedule.

1. Coordinate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
   a. Application for Payment forms with continuation sheets.
   b. Submittal schedule.
   c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the Schedule of Values to Owner's Representative at earliest possible date, but no later than 7 days before the date scheduled for submittal of initial Applications for Payment.
3. Sub-schedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide sub-schedules showing values coordinated with each element.

C. Format and Content: Use Compensation Schedule (Appendix G to the Basis of Design Reports) as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section. Contractor to submit Schedule of Values to Owner's Representative on 8.5-inch by 11-inch white paper and/or in electronic Microsoft Excel Spreadsheet format.

1. Identification: Include the following Project identification on the Schedule of Values:
   a. Project name and location.
   b. Name of Owner's Representative.
   c. Owner's project number.
   d. Contractor's name and address.
   e. Date of submittal.
2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor (if necessary).
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
      1) Labor.
      2) Materials.
      3) Equipment.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of 5 percent of the Contract Sum.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
    a. Differentiate between items stored onsite and items stored offsite. If required, include evidence of insurance.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Purchase Contracts: Provide a separate line item in the Schedule of Values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.04 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Owner’s Representative and paid for by Owner.

    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Application for Payment Forms: Use forms acceptable to Owner's Representative for Applications for Payment. Submit forms for approval with initial submittal of Schedule of Values.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner's Representative will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored onsite and items stored offsite.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:
    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Owner's Representative by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's construction schedule (preliminary if not final).
4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
5. Products list (preliminary if not final).
6. Schedule of unit prices.
7. Submittal schedule (preliminary if not final).
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of permits required for work.
11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
12. Initial progress report.
13. Report of preconstruction conference.
14. Certificates of insurance and insurance policies.
15. Performance and payment bonds.
16. Data needed to acquire Owner's insurance.

I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete. Include documentation supporting claim that the Work

is substantially complete and a statement showing an accounting of changes to the Contract Sum.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, “Contractor's Affidavit of Payment of Debts and Claims.”
5. AIA Document G706A, “Contractor's Affidavit of Release of Liens.”
6. AIA Document G707, “Consent of Surety to Final Payment.”
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUPPLEMENT

A. The supplement listed below, following “End of Section,” is part of this Specification.

1. Payment Parameters.

END OF SECTION

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Base Work - Lump Sum Items

No.		*Unit of Measure*	*Payment Parameters*
A.1	Performance and Payment Bonds	LS	As required in General Terms and Conditions.
A.2	Mobilization	LS	This line item includes labor, equipment, and materials necessary to transport personnel and equipment to the Site, prepare equipment for use at the site, set up temporary facilities and utilities, and prepare and provide submittals required prior to start of Base Work. The lump sum price for Mobilization shall not exceed 7.5 percent of the total bid price.
A.3	Preparation of Pre-Construction Submittals, including CC-QAPP	LS	This line item includes providing labor, materials and equipment necessary to prepare pre-construction submittals, including the Quality Assurance Project Plan for collection and analysis of analytical samples.
A.4	TSCA Permitting and Design Support	LS	This line item includes providing labor, materials and equipment necessary to provide design support for TSCA work and permitting support for TSCA work. Includes providing initial draft and revised submittals following USEPA GLNPO review.
A.5	TSCA Treatability Studies	LS	This line item includes providing labor, materials and equipment necessary to conduct treatability studies for the TSCA work. Includes sample collection, running tests with multiple reagents, and reporting results. Includes coordination with USEPA GLNPO and the TSCA disposal facility to ensure suitable reagents are used and disposal requirements are met.
A.6	Infrastructure Construction	LS	This line item includes providing labor, materials and equipment necessary to construct haul roads, laydown/storage areas, sediment slurry conveyance pipeline at the CDF, debris staging area at the CDF, and other infrastructure necessary to complete the Base Work.
A.7	Site Maintenance	LS	This line item includes providing labor, materials and equipment necessary to provide traffic control, dust control, road sweeping, equipment storage, and maintain infrastructure and temporary facilities.
A.8	Surveys	LS	This line item includes providing labor, materials and equipment necessary to perform bathymetric and land-based surveys as specified in the Contract Documents. Also includes calculations and preparation of record documents based on surveys.
A.9	Site Restoration	LS	This line item includes labor, equipment, and materials necessary to restore areas on the CDF and other areas, as necessary, impacted by the Base Work. This includes removal of constructed infrastructure at the conclusion of the Work.
A.10	Demobilization	LS	This line item includes labor, equipment, and materials necessary to prepare and remove equipment from the site and remaining materials from the site. Includes decontamination activities, including any analytical testing related to decontamination, of equipment for demobilization. Also includes the removal of the materials and equipment set up at the CDF.
A.11	Preparation of Remedial Action Report	LS	This line item includes preparation and revision of Record Drawings and preparation of final Remedial Action Report describing the work activities.

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Base Work - Unit Price Items

No.		*Unit of Measure*	*Payment Parameters*
B.1	Mechanical Dredging, Transportation, and CDF Disposal of Non-TSCA Sediment	CY	This line item includes providing labor, materials and equipment necessary to perform mechanical dredging of Non-TSCA sediment, transport the dredged materials over to the CDF, and dispose of the material within the CDF hydraulically through a conveyance pipeline. Also includes performing dredging in accordance with BMPs and silt curtains as specified in the Contract Documents and turbidity monitoring to meet specified resuspension performance standards. Payment is based on in situ volume of dredge material as measured by pre-dredging and postdredging surveys.
B.2	Additional Cost for Debris Removal and CDF Disposal	CY	This line item includes labor, equipment, and materials necessary to remove Debris from the dredged material and dispose of it within the CDF as specified in the Contract Documents. Payment is based upon surveyed volume disposed within the CDF. The survey at the CDF shall compare the elevations of the excavated pit prior to placement of debris with the filled pit once the top of the debris is covered with previously-excavated material. Estimation of debris volume will be sufficient for progress payments.
B.3	Transport and Disposal of Debris at Landfill	Ton	This line item includes labor, equipment, and materials necessary to transport and dispose of Debris that is too large or otherwise cannot be placed at the CDF at a suitable landfill.
B.4	Mechanical Dredge Standby Time	HR	This line item includes providing labor and equipment related to mechanical dredging activities during Base Work while a period of nonoperation is imposed upon Contractor and not caused by failure of Contractor to execute according to Contract requirements. It does not include non-operation due to exceedances of resuspension controls, mechanical delays, other river traffic, or weather. This is for the entire dredging process. Hourly price shall reflect costs for shutdown of all dredging/offloading operations.

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Option 1 Work - Lump Sum Items

No.		*Unit of Measure*	*Payment Parameters*
A.1	Performance and Payment Bonds	LS	As required in General Terms and Conditions.
A.2	Mobilization	LS	This line item includes labor, equipment, and materials necessary to transport personnel and equipment to the site, prepare equipment for use at the site, set up temporary facilities and utilities, and prepare and provide submittals required prior to start of Option 1 Work. Shall not include mobilization for equipment and materials used for Base Work. The lump sum price for Mobilization shall not exceed 7.5 percent of the total bid price.
A.3	Infrastructure Construction	LS	This line item includes providing labor, materials and equipment necessary to construct haul roads, laydown/storage areas, and other infrastructure necessary to complete the Option 1 Work. Shall not include infrastructure used for Base Work.
A.4	Site Maintenance	LS	This line item includes providing labor, materials and equipment necessary to provide traffic control, dust control, road sweeping, equipment storage, and maintain infrastructure and temporary facilities associated with Option 1 Work. Shall not include site maintenance associated with Base Work.
A.5	Surveys	LS	This line item includes providing labor, materials and equipment necessary to perform bathymetric and land-based surveys for Option 1 Work as specified in the Contract Documents. Also includes calculations and preparation of record documents based on surveys.
A.6	Site Restoration	LS	This line item includes labor, equipment, and materials necessary to restore areas, as necessary, impacted by Option 1 Work. This includes removal of constructed infrastructure at the conclusion of the Work.
A.7	Demobilization	LS	This line item includes labor, equipment, and materials necessary to prepare and remove equipment from the site and remaining materials from the site associated with Option 1 Work. Includes decontamination activities, including any analytical testing related to decontamination, of equipment for demobilization.

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Option 1 Work - Unit Price Items

No.		*Unit of Measure*	*Payment Parameters*
B.1a	Purchase and Delivery of Active Cap Materials	Ton	This line item includes providing labor, equipment, and materials necessary to provide active cap materials as specified in the Contract Documents. Payment is based on the tonnage of material placed.
B.1b	Purchase, Delivery, and Placement of Additional Backfill in Lieu of Active Cap Materials	CY	This line item includes providing labor, equipment, and materials necessary to provide additional backfill to replace the volume that would be taken up by active cap materials. Payment is based on 3,400 cubic yards - no additional measurement will be obtained. This line item will be used only in the event active cap materials are not required to be placed (if directed by the USEPA GLNPO or USEPA GLNPO's Representative).
B.2	Placement of City Ship Canal Cap	SF	This line item includes providing labor, equipment, and materials necessary to place the City Ship Canal Cap over the river bottom as specified in the Contract Documents. Payment is based on square footage of cap placed as determined by pre- and post-placement bathymetric surveys.
B.3	Placement of ADM/Pillsbury Armored Cap	SF	This line item includes providing labor, equipment, and materials necessary to place an armored cap over the river bottom as specified in the Contract Documents. Payment is based on square footage of cap placed as determined by pre- and post-placement bathymetric surveys.
B.4	Cap Placement Equipment Standby Time	HR	This line item includes providing labor and equipment related to cap placement activities during Option 1 Work while a period of nonoperation is imposed upon Contractor and not caused by failure of Contractor to execute according to Contract requirements. It does not include non-operation due to exceedances of resuspension controls, mechanical delays, other river traffic, or weather.

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Option 2 Work - Lump Sum Items

No.		*Unit of Measure*	*Payment Parameters*
A.1	Performance and Payment Bonds	LS	As required in General Terms and Conditions.
A.2	Mobilization	LS	This line item includes labor, equipment, and materials necessary to transport personnel and equipment to the site, prepare equipment for use at the site, set up temporary facilities and utilities, and prepare and provide submittals required prior to start of Option 2 Work. Shall not include mobilization for equipment and materials used for Base Work. The lump sum price for Mobilization shall not exceed 7.5 percent of the total bid price.
A.3	Infrastructure Construction	LS	This line item includes providing labor, materials and equipment necessary to construct haul roads, laydown/storage areas, and other infrastructure necessary to complete the Option 2 Work. Shall not include infrastructure used for Base Work.
A.4	Site Maintenance	LS	This line item includes providing labor, materials and equipment necessary to provide traffic control, dust control, road sweeping, equipment storage, and maintain infrastructure and temporary facilities associated with Option 2 Work. Shall not include site maintenance associated with Base Work.
A.5	Surveys	LS	This line item includes providing labor, materials and equipment necessary to perform bathymetric and land-based surveys for Option 2 Work as specified in the Contract Documents. Also includes calculations and preparation of record documents based on surveys.
A.6	Site Restoration	LS	This line item includes labor, equipment, and materials necessary to restore areas, as necessary, impacted by Option 2 Work. This includes removal of constructed infrastructure at the conclusion of the Work.
A.7	Demobilization	LS	This line item includes labor, equipment, and materials necessary to prepare and remove equipment from the site and remaining materials from the site associated with Option 2 Work. Includes decontamination activities, including any analytical testing related to decontamination, of equipment for demobilization.

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Option 2 Work - Unit Price Items

No.		*Unit of Measure*	*Payment Parameters*
B.1	Mechanical Dredging, Transportation, and CDF Disposal of Non-TSCA Sediment	CY	This line item includes providing labor, materials and equipment necessary to perform mechanical dredging of Non-TSCA sediment, transport the dredged materials over to the CDF, and dispose of the material within the CDF hydraulically through a conveyance pipeline. Also includes performing dredging in accordance with BMPs and silt curtains as specified in the Contract Documents and turbidity monitoring to meet specified resuspension performance standards. Payment is based on in situ volume of dredge material as measured by pre-dredging and postdredging surveys.
B.2	Additional Cost for Debris Removal and CDF Disposal	CY	This line item includes labor, equipment, and materials necessary to remove Debris from the dredged material and dispose of it within the CDF as specified in the Contract Documents. Payment is based upon surveyed volume disposed within the CDF.
B.3	Transport and Disposal of Debris at Landfill	Ton	This line item includes labor, equipment, and materials necessary to transport and dispose of Debris that is too large or otherwise cannot be placed at the CDF at a suitable landfill.
B.4	Mechanical Dredge Standby Time	HR	This line item includes providing labor and equipment related to mechanical dredging activities during Base Work while a period of nonoperation is imposed upon Contractor and not caused by failure of Contractor to execute according to Contract requirements. It does not include non-operation due to exceedances of resuspension controls, mechanical delays, other river traffic, or weather. This is for the entire dredging process. Hourly price shall reflect costs for shutdown of all dredging/offloading operations.

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Option 3 Work - Lump Sum Items

No.		*Unit of Measure*	*Payment Parameters*
A.1	Performance and Payment Bonds	LS	As required in General Terms and Conditions.
A.2	Mobilization	LS	This line item includes labor, equipment, and materials necessary to transport personnel and equipment to the site, prepare equipment for use at the site, set up temporary facilities and utilities, and prepare and provide submittals required prior to start of Option 3 Work. Shall not include mobilization for equipment and materials used for Base Work. The lump sum price for Mobilization shall not exceed 7.5 percent of the total bid price.
A.3	Infrastructure Construction	LS	This line item includes providing labor, materials and equipment necessary to construct haul roads, laydown/storage areas, and other infrastructure necessary to complete the Option 3 Work. Shall not include infrastructure used for Base Work.
A.4	Site Maintenance	LS	This line item includes providing labor, materials and equipment necessary to provide traffic control, dust control, road sweeping, equipment storage, and maintain infrastructure and temporary facilities associated with Option 3 Work. Shall not include site maintenance associated with Base Work.
A.5	Surveys	LS	This line item includes providing labor, materials and equipment necessary to perform bathymetric and land-based surveys for Option 3 Work as specified in the Contract Documents. Also includes calculations and preparation of record documents based on surveys.
A.6	Site Restoration	LS	This line item includes labor, equipment, and materials necessary to restore areas, as necessary, impacted by Option 3 Work. This includes removal of constructed infrastructure at the conclusion of the Work.
A.7	Demobilization	LS	This line item includes labor, equipment, and materials necessary to prepare and remove equipment from the site and remaining materials from the site associated with Option 3 Work. Includes decontamination activities, including any analytical testing related to decontamination, of equipment for demobilization.
A.8	Riverbend Habitat Restoration	LS	This line item includes labor, equipment, and materials necessary to performed habitat restoration activities at the Riverbend Site in accordance with the Contract Documents.

Option 3 Work - Lump Sum Items (continued)

No.		*Unit of Measure*	*Payment Parameters*
A.9	Buffalo Color Habitat Restoration	LS	This line item includes labor, equipment, and materials necessary to performed habitat restoration activities at the Buffalo Color Site in accordance with the Contract Documents.
A.10	Ohio Street Habitat Restoration	LS	This line item includes labor, equipment, and materials necessary to performed habitat restoration activities at the Ohio Street Site in accordance with the Contract Documents.
A.11	Katherine Street Habitat Restoration	LS	This line item includes labor, equipment, and materials necessary to performed habitat restoration activities at the Katherine Street Site in accordance with the Contract Documents.
A.12	City Ship Canal Cap Restoration	LS	This line item includes labor, equipment, and materials necessary to performed habitat restoration activities over the City Ship Canal Cap in accordance with the Contract Documents.

Option 3 Work - Unit Price Items

No.		*Unit of Measure*	*Payment Parameters*
B.1	Removal and disposal of debris within the in-water portion for Habitat Restoration	Ton	This line item includes providing labor, materials and equipment necessary to perform the removal and disposal of the debris found within the in-water portion during the habitat restoration work. Based on weight tickets at a certified scale at the landfill.

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Option 4 Work - Lump Sum Items

No.		*Unit of Measure*	*Payment Parameters*
A.1	Performance and Payment Bonds	LS	As required in General Terms and Conditions.
A.2	Mobilization	LS	This line item includes labor, equipment, and materials necessary to transport personnel and equipment to the site, prepare equipment for use at the site, set up temporary facilities and utilities, and prepare and provide submittals required prior to start of Option 4 Work. Shall not include mobilization for equipment and materials used for Base Work. The lump sum price for Mobilization shall not exceed 7.5 percent of the total bid price.
A.3	Infrastructure Construction	LS	This line item includes providing labor, materials and equipment necessary to construct haul roads, laydown/storage areas, and other infrastructure necessary to complete the Option 4 Work. Shall not include infrastructure used for Base Work.
A.4	Site Maintenance	LS	This line item includes providing labor, materials and equipment necessary to provide traffic control, dust control, road sweeping, equipment storage, and maintain infrastructure and temporary facilities associated with Option 4 Work. Shall not include site maintenance associated with Base Work.
A.5	Surveys	LS	This line item includes providing labor, materials and equipment necessary to perform bathymetric and land-based surveys for Option 4 Work as specified in the Contract Documents. Also includes calculations and preparation of record documents based on surveys.
A.6	Site Restoration	LS	This line item includes labor, equipment, and materials necessary to restore areas, as necessary, impacted by Option 4 Work. This includes removal of constructed infrastructure at the conclusion of the Work.
A.7	Demobilization	LS	This line item includes labor, equipment, and materials necessary to prepare and remove equipment from the site and remaining materials from the site associated with Option 4 Work. Includes decontamination activities, including any analytical testing related to decontamination, of equipment for demobilization.
A.8	Water Treatment	LS	This line item includes labor, equipment, and materials necessary for disposal of water treatment consumables and to operate the temporary water treatment system to treat water generated during from sources during Option 4 Work.

Payment Parameters
Buffalo River Area of Concern
May 23, 2013

Option 4 Work - Unit Price Items

No.		*Unit of Measure*	*Payment Parameters*
B.1	Mechanical Dredging of TSCA Sediment	CY	This line item includes providing labor, materials and equipment necessary to perform mechanical dredging of TSCA Sediment, transferring dredged materials over to the TSCA staging area, offloading dredged material onto the pad, and loading dewatered dredged material into trucks on the asphalt pad. Also includes performing dredging in accordance with BMPs to meet specified resuspension performance standards. Payment is based on in situ volume of dredge material as measured by pre-dredging and post-dredging bathymetric surveys. Includes cost for installing, monitoring, maintaining, and removal of silt curtains as well as air monitoring and water quality monitoring as described in the Contract Documents. Also includes cost for managing Debris removed during dredging of TSCA Sediment.
B.2	Supply and Mix Stabilization Reagent for TSCA Sediment	TON	This line item includes providing labor, materials and equipment necessary to provide and mix reagent to stabilize TSCA Sediment. Payment is based on tonnage of reagent mixed with TSCA Sediment, as determined by weight tickets at a certified scale from loads of reagent provided during Option 4 Work. For bidding purposes, assume 10% by weight Type III Portand Cement will be used.
B.3	TSCA Disposal	TON	This line item includes labor, equipment, and materials necessary to decontaminate the exterior of trucks and transport and dispose of dredged materials in a TSCA-permitted landfill. Payment is based upon weight tickets obtained from the landfill.
B.4	Mechanical Dredge Standby Time	HR	This line item includes providing labor and equipment related to mechanical dredging activities during Base Work while a period of nonoperation is imposed upon Contractor and not caused by failure of Contractor to execute according to Contract requirements. It does not include non-operation due to exceedances of resuspension controls, mechanical delays, other river traffic, or weather. This is for the entire dredging, offloading, stabilizing, and offsite disposal process. Hourly price shall reflect costs for shutdown of all dredging/offloading/stabilizing/disposal operations.
B.5	Confirmation Sampling and Analysis (dredge area)	EA	This line item includes the providing the labor, equipment and materials necessary for the collection and analysis of sediment confirmation samples within the TSCA Dredge Management Unit. Final details regarding the sampling method and analysis will be determined during the TSCA permitting process. For bidding purposes, the contractor shall assume the collection of 6” push core samples with analysis for PCB aroclors and percent moisture, plus applicable QA samples.

SECTION 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Informational submittals.
2. Coordination.
3. Progress of Work.
4. Contractor's Construction Schedule.
5. Overall Progress Schedule.
6. Daily construction reports.
7. Material location reports.
8. Site condition reports.
9. Special reports.

B. Related Requirements:

1. Section 01 33 00, Submittal Procedures, for submitting schedules and reports.
2. Section 01 40 00, Contractor Quality Control, for submitting a schedule of tests and inspections.

1.02 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early-start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.03 INFORMATIONAL SUBMITTALS

A. Overall Progress Schedule: Submit adjusted schedule with each monthly Application for Payment in accordance with the General Term and Conditions, and at such other times as necessary to reflect: (i) progress of Work to within 5 working days prior to submission; (ii) changes in Work scope and activities modified since submission; (iii) delays in Submittals or resubmittals, deliveries, or Work; (iv) adjusted or modified sequences of Work; (v) other identifiable changes; and (vi) revised projections of progress and completion.

B. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF electronic file.

C. Contractor's Construction Schedule: Initial schedule for entire construction period.

1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early-start date, early-finish date, late-start date, late-finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early-start date, or actual-start date if known.

2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early-start date, or actual-start date if known.

E. Construction Schedule Updating Reports: Submit an updated schedule weekly and with Applications for Payment. Include an upcoming work summary.

F. Daily and Weekly Reports: Submit daily and weekly reports that include operations overview, daily area covered estimated daily volume, dredging location figures, and graph of turbidity data.

G. Material Location Reports: Submit at weekly intervals.

H. Site Condition Reports: Submit at time of discovery of differing conditions.

I. Special Reports: Submit at time of unusual event.

1.04 COORDINATION

A. Coordinate Contractor's construction schedule with the Schedule of Values submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.05 PROGRESS OF WORK

A. If the Contractor fails to complete activity by its latest scheduled completion date and this failure may extend Contract Times (or Milestones), Contractor shall, within 3 days of such failure, submit a written statement as to how Contractor intends to correct nonperformance and return to the acceptable current progress schedule. Actions by Contractor to complete Work within Contract Times (or Milestones) will not be justification for adjustment to Contract Price or Contract Times.

B. The Owner may order Contractor to increase plant, equipment, labor force or working hours if Contractor fails to: (i) complete a critical scheduled activity by its latest Milestone completion date, or (ii) satisfactorily execute Work as necessary to prevent delay to the overall completion of the Project.

PART 2 PRODUCTS

2.01 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for Contract execution to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Owner’s Representative.
2. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00, Submittal Procedures, in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
3. TSCA Confirmation Sampling and Analysis Time: Include no fewer than 10 days for TSCA confirmation sampling and analysis time.
4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Owner’s Representative’s administrative procedures necessary for certification of Substantial Completion.
5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected. Arrange list of activities on schedule by DMU and arrange DMUs in Sequence from upstream to downstream.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion**.**

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.

4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance and the date by which recovery will be accomplished.

G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.02 OVERALL PROGRESS SCHEDULE

A. General

1. Notice to Proceed will be issued only after the Overall Progress Schedule has been reviewed as acceptable by the Owner in accordance with Section 01 33 00, Submittal Procedures. Owner will review the initial submittal and subsequent resubmittals of the Overall Progress Schedule within 7 calendar days of receipt.
2. Schedule(s) shall reflect Work logic sequences, restraints, delivery windows, review times, Contract Times, and Milestones set forth in the Agreement and shall begin with the date of Notice to Proceed and conclude with the date of Final Completion.
3. The schedule requirement herein is the minimum required. Contractor may prepare a more sophisticated schedule if such will aid Contractor in execution and timely completion of Work.
4. Float time is a Project resource available to both parties to meet contract Milestones and Contract Times.
5. Use of float suppression techniques such as preferential sequencing or logic, special lead/lag logic restraints, and extended activity times are prohibited, and use of float time disclosed or implied by use of alternate float-suppression techniques shall be shared to proportionate benefit of the Owner and Contractor.
6. Pursuant to above float-sharing requirement, no time extensions will be granted nor delay damages paid until a delay occurs which (i) impacts Project’s critical path, (ii) consumes available float or contingency time, and (iii) extends Work beyond Contract completion date.
7. If the Contractor provides an accepted schedule with an early completion date, the Owner reserves the right to reduce Contract Times to match the early completion date by issuing a deductive Change Order at no change in Contract Price.

2.03 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 15 days of date established for the Notice of Award.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2.04 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. Safety toolbox meeting topic.
2. List of subcontractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.
11. Emergency procedures.
12. Orders and requests of authorities having jurisdiction.
13. Change Orders received and implemented.
14. Work Change Directives received and implemented.
15. Sampling events performed.
16. DMUs completed and verified.

B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.05 FORMAT

A. Computer generated Gantt (Bar) chart or Network Analysis Diagram schedule using Critical Path Method (CPM), generally as outlined in Associated General Contractors of America (AGC) publication "The Use of CPM in Construction-A Manual for General Contractor's and the Construction Industry," latest edition, prepared on reproducible paper, not larger than 30 inches by 42 inches. Computer software used to generate the schedule shall be Microsoft Project 2003 or a later version.

1. Show complete interdependence and sequence of construction and Project-related activities reasonably required to complete the Work, identifying Work of separate stages and other logically grouped activities, and clearly identify critical path of activities.
   a. Include at a Minimum: Contract Work; major and other equipment and critical product design, fabrication, testing, delivery and installation times including required lead time for Dredging Contractor-furnished products, move-in and other preliminary activities, Project closeout and cleanup, Substantial Completion dates, Submittals that may impact critical path, and system/subsystem/component testing, facility startup, and training activities that may impact critical path.
   b. Develop subschedules to further define critical portions of the Work.
   c. Indicate dates for early- and late-start, early- and late-finish, float and duration.
   d. No activity duration, exclusive of those for Submittals review and product fabrication/delivery, shall be less than 1 day, unless otherwise approved by USEPA.
   e. Activity duration for Submittals review shall not be less than review time specified unless clearly identified and prior written acceptance has been obtained from USEPA.
   f. Weekly Schedule Submissions: Include overall percent complete, projected and actual; and percent completion progress for each listed activity.

2.06 SPECIAL REPORTS

A. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report within 1 day of an occurrence. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Distribute copies of report to parties affected by the occurrence. Advise Owner in advance when these events are known or predictable.

PART 3 EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At weekly intervals, update schedule to reflect actual construction progress and activities. Issue an updated schedule before the next regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Final Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Owner’s Representative, Owner, inspecting firms or agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

3.02 CLAIMS FOR ADJUSTMENT OF CONTRACT TIMES

A. Where the Owner has not yet rendered formal decision on Contractor's claim for adjustment of Contract Times, and parties are unable to agree as to amount of adjustment to be reflected in progress schedule, Contractor shall reflect that amount of time adjustment in progress schedule as Owner may accept as appropriate for the interim. It is understood and agreed that such interim acceptance by the Owner will not be binding and will be made only for purpose of continuing to schedule Work, until such time as formal decision as to an adjustment, if any, of the Contract Times acceptable to the Owner has been rendered. Contractor shall revise progress schedule prepared thereafter in accordance with Owner's formal decision

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 01 29 00, Payment Procedures, for submitting Applications for Payment and the Schedule of Values.
2. Section 01 32 00, Construction Progress Documentation, for submitting schedules and reports, including Contractor's Construction Schedule.
3. Section 01 40 00, Contractor Quality Control, for requirements related to test and inspection reports, schedules of tests, and inspections submittals.
4. Section 01 77 00, Closeout Procedures, for closeout submittals and maintenance material submittals.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Owner’s Representative’s responsive action. Action submittals are those submittals indicated in individual Specification Sections as “action submittals.”

B. Informational Submittals: Written and graphic information and physical samples that do not require Owner’s Representative’s responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.03 SUBMISSION

A. Provide submittals to Owner’s Representative or Owner onsite. If directed by Owner’s Representative or Owner, send copies to the Owner or Owner’s Representative at the addresses provided in Section 01 10 00, Summary of Work.

1.04 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by Construction Schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Owner's Representative and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.
    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

B. Format:

1. Do not base Shop Drawings on reproductions of Contract Documents.
2. Package submittal information by individual Specification Section. Do not combine different Specification Sections together in submittal package, unless otherwise directed in Specification.
3. Present in a clear and thorough manner and in sufficient detail to show kind, size, arrangement, and function of components, materials, and devices, and compliance with Contract Documents.
4. Index with labeled tab dividers in an orderly manner.
5. When feasible, provide an electronic copy (via email, FTP site, or memory stick/flash drive) to the Owner's Representative in addition to hardcopy submittal.

1.05 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Owner's Representative's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Owner's Representative for Contractor's use in preparing submittals.

1. Owner's Representative will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
    a. Owner's Representative makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    b. Digital Drawing Software Program: The Contract Drawings are available in AutoCAD Civil 3D 2012.
    c. Contractor shall execute an Electronic Media Release Form similar to the one attached as a supplement to this section.

d. Digital data files for the dredge area plans and sections will be furnished.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
   a. Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's Representative's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 weekdays for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner's Representative will advise Contractor when a submittal being processed must be delayed for coordination.
2. Resubmittal Review: Allow 5 weekdays for review of each resubmittal.
3. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Owner's Representative and to another third party, allow 15 weekdays for review of each submittal. Submittal will be returned to Owner's Representative before being returned to Contractor.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.

2. Name file with submittal number or other unique identifier, including revision identifier.
    a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., BRASR-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., BRASR-061000.01.A).
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Owner's Representative.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner**,** containing the following information:
    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name of Construction Manager.
    e. Name of Contractor.
    f. Name of firm or entity that prepared submittal.
    g. Names of subcontractor, manufacturer, and supplier.
    h. Category and type of submittal.
    i. Submittal purpose and description.
    j. Specification Section number and title.
    k. Specification paragraph number or drawing designation and generic name for each of multiple items.
    l. Drawing number and detail references, as appropriate.
    m. Location(s) where product is to be installed, as appropriate.
    n. Related physical samples submitted directly.
    o. Indication of full or partial submittal.
    p. Transmittal number, numbered consecutively.
    q. Submittal and transmittal distribution record.
    r. Other necessary identification.
    s. Remarks.
5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
    a. Project name.
    b. Number and title of appropriate Specification Section.
    c. Manufacturer name.
    d. Product name.

E. Options: Identify options requiring selection by Owner's Representative.

F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner's Representative on previous submittals, and deviations from requirements in the Contract

Documents, including minor variations and limitations. Include same identification information as related submittal.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Owner's Representative's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Owner's Representative's action stamp.

PART 2 PRODUCTS

2.01 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files.
   a. Owner's Representative will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

B. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.
    e. Testing by recognized testing agency.
    f. Application of testing agency labels and seals.
    g. Notation of coordination requirements.
    h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
    a. Wiring diagrams showing factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
    a. PDF electronic file if legible when printed on 11x17 paper, otherwise provide paper copy.

D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data**,** unless submittal based on Owner’s Representative's digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of a professional engineer licensed in the state of New York if specified.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42.
3. Submit Shop Drawings in the following format:
    a. PDF electronic file if legible when printed on 11x17 paper, otherwise provide paper copy.

E. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of applicable Specification Section.
   e. Specification paragraph number and generic name of each item.
3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set. Samples may be incorporated into the Work. Such Samples must be in an undamaged condition at time of use.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
   a. Number of Samples: Submit two sets of Samples. Owner’s Representative will retain one Sample set; remainder will be returned.
      1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two sets of paired units that show approximate limits of variations.

F. Contractor's Construction Schedule: Comply with requirements specified in Section 01 32 00, Construction Progress Documentation.

G. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00, Payment Procedures.

H. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00, Contractor Quality Control.

I. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 00, Closeout Procedures.

J. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

PART 3 EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner’s Representative.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 OWNER’S REPRESENTATIVE’S ACTION

A. Action Submittals:

1. Prepare and submit Action Submittals required by individual Specification Sections.
2. Copies: Submit four paper copies only for those submittals that are not electronic.
3. Action Submittal Dispositions: Owner’s Representative will review, mark, and stamp as appropriate, and distribute marked-up copies as noted:
    a. Approved:
        1) Contractor may incorporate product(s) or implement Work covered by submittal.
        2) Distribution:
            a) One copy furnished to Owner’s Representative.

b) One copy retained in Owner's file.
c) Remaining copies returned to Contractor appropriately annotated.
d) For electronic submittal scanned version of marked-up copy will be distributed to Owner and Contractor and Owner's Representative will retain the one hard copy.

b. Approved as Noted:
1) Contractor may incorporate product(s) or implement Work covered by submittal, in accordance with Owner's Representative's notations.
2) Distribution:
a) One copy furnished to Owner's Representative.
b) One copy retained in Owner's file.
c) Remaining copies returned to Contractor appropriately annotated.
d) For electronic submittal scanned version of marked-up copy will be distributed to Owner and Contractor and Owner's Representative will retain the one hard copy.

c. Partial Approval, Resubmit as Noted:
1) Make corrections or obtain missing portions, and resubmit.
2) Except for portions indicated, Contractor may begin to incorporate product(s) or implement Work covered by submittal, in accordance with Owner's Representative's notations.
3) Distribution
a) One copy furnished to Owner's Representative.
b) One copy retained in Owner's file.
c) Remaining copies returned to Contractor appropriately annotated.
d) For electronic submittal scanned version of marked-up copy will be distributed to Owner and Contractor and Owner's Representative will retain the one hard copy.

d. Revise and Resubmit:
1) Contractor may not incorporate product(s) or implement Work covered by submittal.
2) Distribution:
a) One copy furnished to Owner's Representative.
b) One copy retained in Owner's file.
c) Remaining copies returned to Contractor appropriately annotated.
d) For electronic submittal scanned version of marked-up copy will be distributed to Owner and Contractor and Owner's Representative will retain the one hard copy.

3.03 INFORMATIONAL SUBMITTALS

A. General:

1. Copies: Only submit paper copies if submittal is not submitted electronically. Submit three copies, unless otherwise indicated in individual Specification Section.
2. Refer to individual Specification Sections for specific submittal requirements.
3. The Owner's Representative will review each submittal. If submittal meets conditions of the Contract, Owner's Representative will forward copies to appropriate parties. If Owner's Representative determines submittal does not meet conditions of the Contract and is therefore considered unacceptable, Owner's Representative will retain one copy and return remaining copies with review comments to Contractor, and require that submittal be corrected and resubmitted.

B. Certificates:

1. General:
   a. Provide notarized statement that includes signature of entity responsible for preparing certification.
   b. Signed by officer or other individual authorized to sign documents on behalf of that entity.
2. Material Test: Prepared by qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
3. Certificates of Successful Testing or Inspection: Submit when testing or inspection is required by Laws and Regulations or governing agency or specified in individual Specification Sections.

C. Contract Closeout Submittals: In accordance with Section 01 77 00, Closeout Procedures.

D. Statement of Qualification: Evidence of qualification, certification, or registration as required in Contract Documents to verify qualifications of professional land surveyor, engineer, materials testing laboratory, specialty Contractor, trade, Specialist, consultant, installer, and other professionals.

E. Submittals Required by Laws, Regulations, and Governing Agencies:

1. Submit promptly notifications, reports, certifications, payrolls, and otherwise as may be required, directly to the applicable federal, state, or local governing agency or their representative.

2. Transmit to Owner's Representative for Owner's Representative's records one copy of correspondence and transmittals (to include enclosures and attachments) between Contractor and governing agency.

F. Test and Inspection Reports:

1. General: Shall contain signature of person responsible for test or report.
2. Field: As a minimum, include the following:
   a. Project title and number.
   b. Date and time.
   c. Record of temperature and weather conditions.
   d. Identification of product and Specification Section.
   e. Type and location of test, Sample, or inspection, including referenced standard or code.
   f. Date issued, testing laboratory name, address, and telephone number, and name and signature of laboratory inspector.
   g. If test or inspection deems material or equipment not in compliance with Contract Documents, identify corrective action necessary to bring into compliance.
   h. Provide interpretation of test results, when requested by Owner's Representative.
   i. Other items as identified in individual Specification Sections.

G. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Owner's Representative.

H. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

1. Owner's Representative will return entire submittal for Contractor's revision if preliminary review deems it incomplete.
2. When the following are missing, submittal will be deemed incomplete:
   a. Contractor's review stamp, completed and signed.
   b. Transmittal of Contractor's Submittal, completed and signed.
   c. Insufficient number of copies.

I. Submittals not required by the Contract Documents may be returned by the Owner's Representative without action. The submittals will not be reviewed and will be returned stamped "Not Subject to Review". The Owner will keep one copy and return remaining copies to Contractor.

3.04 BASIS FOR COMPENSATION

A. The Contractor's cost for complying with the requirements of this Section of the Specifications shall be considered incidental and no additional compensation will be provided.

3.05 SUPPLEMENTS

A. The supplements listed below, following "End of Section," are part of this Specification.

1. Transmittal of Contractor's Submittal Form.
2. Electronic Media Release Form.

END OF SECTION

BUFFALO RIVER AOC SEDIMENT REMEDIATION
USEPA

TRANSMITTAL OF CONTRACTOR'S SUBMITTAL

(ATTACH TO EACH SUBMITTAL)

DATE: _____

TO: _____

_____

_____

_____

_____

Submittal No.: _____

☐ New Submittal ☐ Resubmittal

Project: _____

Project No.: _____

Specification Section No.: _____

(Cover only one section with each transmittal)

Schedule Date of Submittal:

_____

FROM: _____
Contractor

_____

_____

_____

SUBMITTAL TYPE: ☐ Shop Drawing ☐ Sample ☐ Informational

The following items are hereby submitted:

Number of Copies	Description of Item Submitted (Type, Size, Model Number, Etc.)	Spec. and Para. No.	Drawing or Brochure Number	Contains Variation to Contract	
				No	Yes

Contractor hereby certifies that (i) Contractor has complied with the requirements of Contract Documents in preparation, review, and submission of designated Submittal and (ii) the Submittal is complete and in accordance with the Contract Documents and requirements of laws and regulations and governing agencies.

By: _____

Contractor (Authorized Signature)

ELECTRONIC FILES RELEASE AGREEMENT FORM

CH2M HILL, Inc., Project No: 420835
Project Name: Buffalo River AOC Sediment Remediation
Electronic Files: _____

This release agreement dated _____**,** between _____ (RECIPIENT), CH2M HILL, Inc., and Ecology and Environment Engineering, P.C. (E & E) for the exchange of electronic files (via CD, Flash Drive, Email, FTP Sites, etc.) containing information on the **Buffalo River AOC Sediment Remediation Project** (hereinafter referred to as the PROJECT) for use by the RECIPIENT.

Therefore, RECIPIENT, CH2M HILL, Inc., and E & E agree as follows:

1. The electronic files provided to RECIPIENT by CH2M HILL, Inc., for the PROJECT may be used by RECIPIENT in accordance with Article 145 of the New York State Education Law. If RECIPIENT chooses to alter in any way, in whole or in part, the electronic files provided for the PROJECT or any future project(s), RECIPIENT agrees that the use shall be without liability or legal exposure to CH2M HILL, Inc., E & E, or their parent companies or affiliates.

2. Because information and data provided electronically may be altered, whether inadvertently or otherwise, CH2M HILL, Inc. and E & E reserve the right to retain copies of the electronic file(s) and to remove from the electronic files provided to RECIPIENT all identification (such as logo, professional seal, etc.) reflecting the involvement of CH2M HILL, Inc. and E & E in their preparation.

3. The electronic files are provided solely as a convenience to RECIPIENT by CH2M HILL, Inc. and E & E, and shall NOT be considered "Drawings of Record" or as "Construction Documents." The formally issued construction documents shall be referred to and shall govern in the event of any inconsistency.

4. RECIPIENT is advised to check all electronic media for viruses before loading the files. RECIPIENT is fully responsible for intercepting and disabling viruses, if any, that may be inadvertently transmitted with the electronic files and hereby agrees to indemnify and hold CH2M HILL, Inc. and E & E, harmless from and against all claims of any type or nature asserted by RECIPIENT or any party as a result of viruses inadvertently transmitted with the electronic files.

5. Files distributed electronically are subject to data erosion, erasure, and/or alteration, and computer systems and software become obsolete in time. By accepting these electronic files, RECIPIENT acknowledges these risks and agrees to waive all claims against CH2M HILL, Inc. and E & E, should data erosion, erasure, and/or alteration of these electronic files occur.

6. RECIPIENT agrees to defend, indemnify, and hold CH2M HILL, Inc. and E & E and their parent companies and affiliates, harmless from all claims, injuries, damages, losses, expenses, and costs, including attorneys' fees, arising out of breach of this agreement, the modification or reuse of these materials.

7. All data and intellectual property contained on the electronic files remain the property of CH2M HILL, Inc. and E & E and may not be copied or distributed to any other party, other than the parties listed below, without the written permission of CH2M HILL, Inc. and E & E.

ACCEPTED FOR RECIPIENT:	ACCEPTED FOR CH2M HILL, INC.:	ACCEPTED FOR E & E:
_____	_____	_____
By _____	By _____	By _____
Title _____	Title _____	Title _____
Date _____	Date _____	Date _____

SECTION 01 35 91
PROTECTION OF HISTORIC ARTIFACTS

1.01 SUMMARY

A. Section includes general protection and operational procedures for potentially historic discoveries during the Project.

1.02 DEFINITIONS

A. Potentially Historic: Materials removed during dredging operations that are so designated by the Owner's Representative.

B. Designated Historic: Potentially historic items so designated by the SHPO representative.

C. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

D. SHPO: New York State Historic Preservation Office.

1.03 MATERIALS OWNERSHIP

A. Potentially historic items, relics, and similar objects that may be encountered during sediment removal work remain Owner's property or property of New York State or others as determined under admiralty and salvage laws; such objects will not become the property of the Contractor. Carefully salvage each item or object.

1.04 STORAGE AND PROTECTION OF HISTORIC MATERIALS

A. Salvaged Potentially Historic Materials:

1. Store items in a secure area until inspected by the SHPO representative
2. Protect items from damage during storage.

1.05 PROJECT CONDITIONS

A. The cultural resource survey of the side scan sonar study results in the river have identified a potential area of significance just outside the boundary of DMU-11 (see noted location on Drawing DO-4).

1. Two weeks prior to dredging operations beginning in DMU-11, the Owner must be notified so arrangements can be made with SHPO to have, at their discretion, a representative present during work near the area of potential significance.

2. Contractor shall not place anchors or spuds within 25 feet of the designated spot on Drawing DO-4.

B. The northwest tip of Kelly Island is the location of the former Richmond elevator and archaeological remains may extend into the river which is part of DMU-45c. Two weeks prior to dredging operations beginning in DMU-45c, notify Owner so arrangements can be made with SHPO to have, at their discretion, a representative present during work in DMU-45c.

PART 2 PRODUCTS - (NOT USED)

PART 3 EXECUTION

3.01 PROTECTION, GENERAL

A. Ensure that SHPO personnel are onsite and on duty when dredging near the area of potential historic significance begins and during its progress.

3.02 GENERAL HISTORIC REMOVAL

A. When Dredging in DMUs Other Than DMU-11 or DMU-45c:

1. Allow the Owner's Representative monitoring personnel to review objects removed from the sediment as debris to identify them as potentially historic
2. Notify the Owner's Representative monitoring personnel if the Contractor suspects an object removed may be potentially historic.
3. If designated as potentially historic by work with the Owner's Representative monitoring personnel to carefully place the object in the secure storage area for review by a SHPO representative.

B. Halt the process of dredging in the immediate area of such a discovery and only proceed when so notified by the Owner's Representative and in the manner dictated by the Owner's Representative.

C. Notify Owner's Representative of visible changes in the integrity of material stored for SHPO review whether due to environmental causes including biological attack, UV degradation, freezing, or thawing; or due to structural defects including cracks, movement, or distortion.

END OF SECTION

SECTION 01 40 00
CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality assurance and control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality assurance and control services required by Owner’s Representative or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Requirements: Divisions 02 through 35 Sections for specific test and inspection requirements.

1.02 DEFINITIONS

A. Quality Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include Contract enforcement activities performed by Owner’s Representative.

C. Source Quality Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

D. Field Quality Control Testing: Tests and inspections that are performed onsite for installation of the Work and for completed Work.

E. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

F. Installer/Applicator/Erector/Dredger: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, removal, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

G. Experienced: When used with an entity or individual, “experienced” means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.03 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Owner’s Representative for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner’s Representative for a decision before proceeding.

1.04 ACTION SUBMITTALS

A. Contractor's Quality Control Plan: For quality assurance and quality control activities and responsibilities.

B. Contractor shall submit for review, specifications and quality assurance/quality control criteria for dredge operation survey.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Contractor's quality control personnel.

B. Testing Agency Qualifications: For testing agencies specified in Article Quality Assurance within this Specification to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

C. Submit results of laboratory tests and field tests performed.

D. Submit documentation of appropriate licensure or training of persons performing Work.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality control service.

1.06 CONTRACTOR'S QUALITY CONTROL PLAN

A. Quality Control Plan, General: Submit quality control plan within 10 days of Notice to Proceed, and not less than 15 days prior to preconstruction conference. Submit in format acceptable to Owner’s Representative. Coordinate with Contractor's construction schedule.

1. Dredging Contractor’s Project Specific Quality Control Plan shall include, at a minimum:
   a. A description of Contractor’s quality control organization, including a chart showing lines of authority, and acknowledgement that the Contractor’s quality control staff shall conduct inspections for all aspects of the work specified.
   b. The name, qualifications, responsibilities, and authority of each person assigned to Contractor’s quality control function.
   c. A copy of a letter to Contractor’s Quality Control Manager signed by an authorized official of the firm, which describes the responsibility and delegates authority to Contractor’s Quality Control Manager.

d. Procedures for scheduling and managing submittals including those of contractors, fabricators, suppliers, and purchasing agents.
e. Control procedures to be promulgated.
f. Reporting procedures, including proposed reporting formats.
g. Equipment used and other details regarding bathymetric data obtained to guide dredging operations.

B. Quality Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality assurance and quality control procedures similar in nature and extent to those required for Project. Project quality control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Owner’s Representative has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.07 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.

2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.08 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer/Dredger Qualifications: A firm or individual experienced in installing, erecting, or assembling or performing dredging work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance or successful and complete removal of specified dredge material.

C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product similar in material, design, and extent to those indicated for this Project.

D. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E329 and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

1.09 QUALITY CONTROL

A. Owner Responsibilities: Where quality control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality control services.
   a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Owner’s Representative and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Owner’s Representative and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

F. Coordination: Coordinate sequence of activities to accommodate required quality assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

G. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by the Contract Documents as a component of Contractor's quality control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Owner’s Representative, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 LABORATORY TESTS

A. Laboratory tests shall be conducted, and test results, certificates, and/or affidavits shall be submitted, as required in the individual Sections of these Specifications. Laboratory tests refer to those tests made by manufacturers, fabricators, suppliers, or Contractor specifically for this Project and conducted by an independent testing laboratory.

B. All laboratory tests shall be made by an independent testing laboratory approved by the Owner’s Representative. These tests shall be performed in accordance with the specified procedures or in accordance with ASTM procedures if no reference is included.

C. Laboratory tests may be witnessed by the Owner’s Representative. Contractor shall notify the Owner’s Representative in advance of testing to allow Owner’s Representative opportunity to witness. Failure of Contractor to notify will be grounds for rejection of the test results and may require Contractor to repeat testing and/or replace affected work.

D. Contractor shall conduct routine testing of materials used in the Work to satisfy itself that the quality of the Work meets the requirements of the Contract Documents. Owner’s Representative may also conduct routine sampling and analysis to ascertain same. Where laboratory testing, material specifications, or quality control requirements are specified in the individual Sections of these Specifications, Contractor shall not proceed with phases of the Work until Owner’s Representative has had opportunity to collect samples or conduct testing necessary to establish the specified quality of the Work.

Such instances may include, but are not limited to, soil/sediment contaminant testing, soil/sediment gradation testing, moisture content testing, testing of finishes, soil/sediment organic content, or other specified tests. This requirement shall apply even where Contractor is responsible for performing and documenting the performance and results of specific testing requirements by the individual Sections of these Specifications. Owner's Representative shall still be provided the opportunity to collect additional samples or conduct such additional testing as in their opinion may be needed.

E. Contractor shall pay for laboratory testing the Contractor desires. Owner shall pay for initial testing the Owner desires. If testing by the Owner or Owner's Representative identifies defective Work, Contractor shall pay for subsequent sample collection and testing costs required to convince the Owner's Representative that the defective Work has been repaired or replaced.

F. Contractor shall coordinate with the Owner's Representative during construction material testing, in order to provide the Owner's Representative sufficient notice to observe said testing and/or perform confirmatory testing.

1.11 FIELD TESTS

A. Field tests shall be conducted and test results, certificates and/or affidavits shall be submitted as required in the individual Sections of these Specifications. Submit in the quantity and in accordance with the requirements of Section 01 33 00, Submittal Procedures.

B. Field tests shall be conducted in accordance with the individual Sections to establish the quality and final locations of complete systems or individual components of the Work.

C. Field tests shall be set up and conducted by Contractor, who shall provide tools, equipment, instruments, personnel and other facilities required for the satisfactory completion of each test.

D. Field tests shall be witnessed by Owner or Owner's Representative. Contractor shall notify the Owner's Representative in advance of testing to allow the Owner's Representative to witness. Failure of Contractor to notify will be grounds for rejection of test results and Contractor may be required to repeat testing and/or replace affected Work, at Contractor's expense.

1.12 SURVEY BY CONTRACTOR

A. Refer to requirements in Section 02 21 00, Surveys.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Owner’s Representative’s reference during normal working hours.

3.02 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

B. Protect construction exposed by or for quality control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION

SECTION 01 42 13
ABBREVIATIONS AND ACRONYMS

PART 1 GENERAL

1.01 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES

A. Work specified by reference to published standard or specification of government agency, technical association, trade association, professional society or institute, testing agency, or other organization shall meet requirements or surpass minimum standards of quality for materials and workmanship established by designated standard or specification.

B. Where so specified, products or workmanship shall also meet or exceed additional prescriptive or performance requirements included within Contract Documents to establish a higher or more stringent standard of quality than required by referenced standard.

C. Where two or more standards are specified to establish quality, product and workmanship shall meet or exceed requirements of most stringent.

D. Where both a standard and a brand name are specified for a product in Contract Documents, proprietary product named shall meet or exceed requirements of specified reference standard.

E. Copies of standards and specifications of technical societies:

1. Copies of applicable referenced standards have not been bound in these Contract Documents.
2. Where copies of standards are needed by Contractor, obtain a copy or copies directly from publication source and maintain in an orderly manner at the Site as Work Site records, available to Contractor personnel and Owner’s Representative.

1.02 ABBREVIATIONS

A. Abbreviations for trade organizations and government agencies: Following is a list of construction industry organizations and government agencies to which references may be made in the Contract Documents, with abbreviations used.

1.	AA	Aluminum Association
2.	AAMA	American Architectural Manufacturers Association

3.	AASHTO	American Association of State Highway and Transportation Officials
4.	ABMA	American Bearing Manufacturers' Association
5.	ACI	American Concrete Institute
6.	AEIC	Association of Edison Illuminating Companies
7.	AGA	American Gas Association
8.	AGMA	American Gear Manufacturers' Association
9.	AHRI	Air-Conditioning, Heating, and Refrigeration Institute
10.	AI	Asphalt Institute
11.	AISC	American Institute of Steel Construction
12.	AISI	American Iron and Steel Institute
13.	AITC	American Institute of Timber Construction
14.	ALS	American Lumber Standards
15.	AMCA	Air Movement and Control Association
16.	ANSI	American National Standards Institute
17.	AOC	Area of concern
18.	APA	APA – The Engineered Wood Association
19.	API	American Petroleum Institute
20.	APWA	American Public Works Association
21.	ASA	Acoustical Society of America
22.	ASABE	American Society of Agricultural and Biological Engineers
23.	ASCE	American Society of Civil Engineers
24.	ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
25.	ASME	American Society of Mechanical Engineers
26.	ASNT	American Society for Nondestructive Testing
27.	ASSE	American Society of Sanitary Engineering
28.	ASTM	ASTM International
29.	AWI	Architectural Woodwork Institute
30.	AWPA	American Wood Preservers' Association
31.	AWPI	American Wood Preservers' Institute
32.	AWS	American Welding Society
33.	AWWA	American Water Works Association
34.	BHMA	Builders Hardware Manufacturers' Association
35.	BMP	Best management practice
36.	BSA	Buffalo Sewer Authority
37.	BUI	Beneficial use impairment
38.	CAA	Clean Air Act
39.	CBM	Certified Ballast Manufacturer
40.	CCI	CH2M HILL Constructors Inc.
41.	CDA	Copper Development Association
42.	CDF	Confined disposal facility

43.	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
44.	CFR	Code of Federal Regulations
45.	CGA	Compressed Gas Association
46.	CISPI	Cast Iron Soil Pipe Institute
47.	CMAA	Crane Manufacturers' Association of America
48.	CRSI	Concrete Reinforcing Steel Institute
49.	CS	Commercial Standard
50.	CSA	Canadian Standards Association
51.	CSI	Construction Specifications Institute
52.	CWA	Clean Water Act
53.	DIPRA	Ductile Iron Pipe Research Association
54.	EIA	Electronic Industries Alliance
55.	EJCDC	Engineers Joint Contract Documents' Committee
56.	ETL	Electrical Test Laboratories
57.	EVS	Environmental Visualization System
58.	FAA	Federal Aviation Administration
59.	FCC	Federal Communications Commission
60.	FDA	Food and Drug Administration
61.	Fed. Spec.	Federal Specifications (FAA Specifications)
62.	FEMA	Federal Emergency Management Agency
63.	FIPS	Federal Information Processing Standards
64.	FM	FM Global
65.	Ford	Ford Motor Company
66.	FS	Federal Specifications and Standards (Technical Specifications)
67.	ft2	Square feet
68.	GA	Gypsum Association
69.	GAC	Granular activated carbon
70.	GANA	Glass Association of North America
71.	GLNPO	Great Lakes National Program Office
72.	GLWQA	Great Lakes Water Quality Agreement
73.	gpm	Gallons per minute
74.	GPS	Global positioning system
75.	HI	Hydraulic Institute
76.	HMI	Hoist Manufacturers' Institute
77.	IBC	International Building Code
78.	ICBO	International Conference of Building Officials
79.	ICC	International Code Council
80.	ICEA	Insulated Cable Engineers' Association
81.	IEEE	Institute of Electrical and Electronics Engineers
82.	IESNA	Illuminating Engineering Society of North America
83.	IFC	International Fire Code

84.	IFI	Industrial Fasteners Institute
85.	IGMA	Insulating Glass Manufacturer's Alliance
86.	IMC	International Mechanical Code
87.	INDA	Association of the Nonwoven Fabrics Industry
88.	IPC	International Plumbing Code
89.	ISA	Instrumentation, Systems, and Automation Society
90.	ISO	International Organization for Standardization
91.	ITL	Independent Testing Laboratory
92.	JIC	Joint Industry Conferences of Hydraulic Manufacturers
93.	LWD	Low water datum
94.	NYSDEC	New York State department of Environmental Conservation
95.	NYSDOT	New York State Department of Transportation
96.	mg/kg	Milligrams per kilogram
97.	MIA	Marble Institute of America
98.	MIL	Military Specifications
99.	MMA	Monorail Manufacturers' Association
100.	MSS	Manufacturer's Standardization Society
101.	NAAMM	National Association of Architectural Metal Manufacturers
102.	NACE	NACE International
103.	NBGQA	National Building Granite Quarries Association
104.	NEBB	National Environmental Balancing Bureau
105.	NEC	National Electrical Code
106.	NECA	National Electrical Contractors Association
107.	NEMA	National Electrical Manufacturers' Association
108.	NESC	National Electrical Safety Code
109.	NETA	InterNational Electrical Testing Association
110.	NFPA	National Fire Protection Association
111.	NHLA	National Hardwood Lumber Association
112.	NICET	National Institute for Certification in Engineering Technologies
113.	NIST	National Institute of Standards and Technology
114.	NRCA	National Roofing Contractors Association
115.	NRTL	Nationally Recognized Testing Laboratories
116.	NSF	NSF International
117.	NSPE	National Society of Professional Engineers
118.	NTMA	National Terrazzo and Mosaic Association
119.	NTU	Nephelometric turbidity unit
120.	NWWDA	National Wood Window and Door Association
121.	O&M	Operations and maintenance
122.	OSHA	Occupational Safety and Health Administration

123. OSHA	Occupational Safety and Health Act (both Federal and State)
124. PAC	Public Advisory Council
125. PAH	Polynuclear aromatic hydrocarbon
126. PCB	Polychlorinated biphenyl
127. PCI	Precast/Prestressed Concrete Institute
128. PEI	Porcelain Enamel Institute
129. PM10	Particulate matter finer than 10 micrometers in diameter and smaller
130. PPI	Plastic Pipe Institute
131. ppm	Parts per million [ppm]
132. PS	Product Standards Section-U.S. Department of Commerce
133. RAO	Remedial action objective
134. RAP	Remedial action plan
135. RCRA	Resource Conservation and Recovery Act
136. RMA	Rubber Manufacturers' Association
137. RTK	Real-time kinematic positioning system
138. RUS	Rural Utilities Service
139. SAE	SAE International
140. SDI	Steel Deck Institute
141. SDI	Steel Door Institute
142. SESC	Soil erosion and sediment control
143. SJI	Steel Joist Institute
144. SMACNA	Sheet Metal and Air Conditioning Contractors National Association
145. SOW	Statement of Work
146. SPI	Society of the Plastics Industry
147. SSPC	The Society for Protective Coatings
148. STI/SPFA	Steel Tank Institute/Steel Plate Fabricators Association
149. SWI	Steel Window Institute
150. TCA	Tile Council of North America
151. TEMA	Tubular Exchanger Manufacturers' Association
152. TIA	Telecommunications Industry Association
153. TSCA	Toxic Substance Control Act
154. UBC	Uniform Building Code
155. UFC	Uniform Fire Code
156. UL	Underwriters Laboratories Inc.
157. UMC	Uniform Mechanical Code
158. USACE	United States Army Corps of Engineers
159. USBR	U.S. Bureau of Reclamation
160. USEPA	United States Environmental Protection Agency
161. WCLIB	West Coast Lumber Inspection Bureau
162. WI	Wood Institute

163.	WWPA	Western Wood Products Association
164.	yd3	Cubic yards

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes requirements for staging area, temporary utilities, support facilities, and security and protection facilities.

1.02 RELATED SECTIONS

A. Section 01 10 00, Summary of Work.

B. Section 01 57 19, Environmental Controls.

C. Section 01 57 23, Storm Water Pollution Control.

D. Section 01 74 00, Waste Management and Disposal.

E. Section 01 77 00, Closeout Procedures.

1.03 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner, Owner's Representative, testing agencies, and authorities having jurisdiction.

B. Water Service: Pay water-service use charges for water used by all entities for construction operations.

C. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.

1.04 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, and parking areas for construction personnel at all Project staging areas.

B. Specifications and user's manual for all equipment provided by the Contractor. Copies of permits and approvals for construction as required by Laws and Regulations and governing agencies.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

1.05 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

PART 2 PRODUCTS

2.01 MATERIALS

A. Portable Chain-Link Fencing: Minimum 0.148-inch thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide galvanized steel bases for supporting posts.

2.02 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading. Alternatively, Contractor can provide temporary office space for Owner and Owner's Representative's use within an existing permanent building if approved by Owner's Representative.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner and Owner's Representative field personnel and, office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings for 10 individuals. Provide electrical power service and 120V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot square tack and marker boards.
3. OSHA-compliant railed stairways and landings at entrances.
4. Drinking water and private toilet.

5. Coffee machine and supplies.
6. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 degrees F.
7. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

C. Contractor's Field Office: Provision of a field office for the Contractor is at the option of the Contractor.

D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment that require indoor storage. Store combustible materials apart from the building.

2.03 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. Office Equipment- General:

1. Paper Towel Dispenser with Towels: One.
2. Refrigerator, Small: One, between 3 and 4 cubic feet.
3. Computer Chair: Six with the following characteristics.
   a. Five castor base.
   b. Adjustable height.
   c. Swivels.
   d. Locking back.
   e. Adjustable seat back for height and angle.
   f. Adjustable arms
4. Folding Table: Two, 36 inches by 96 inches.
5. Steel Folding Chairs: Ten.
6. Drafting Table: One, 3 feet by 6 feet.
7. Drafting Stool: One, swivel, with back support.
8. Four-Drawer Steel File Cabinet with Lock: Two.
9. Bookcase: Two, 36 inches wide by 48 inches high.
10. Wastepaper Basket: Three.
11. Standing Coat Rack: Three.
12. Dry Erase Whiteboard: One, 48 inches wide by 72 inches long.
13. Dry Erase Markers: Twelve, various colors, including two dry erase marker erasers.
14. First Aid Kit: One.
15. Carbon Dioxide (10-Pound) Fire Extinguisher: Three.
16. Telephone: Two, with one intercom line and two incoming/outgoing lines, Touch-Tone, with conference speaker, and 12-foot coiled handset cord.

17. Answering Machine: AT&T; Model 1726 or equal.
18. Copier Service: Lease of Canon NP6545 (or equal) copier, with document feeding, auto duplexing, and stapler/sorter. Copier will be capable of producing both 8-1/2-inch by 11-inch, and 11-inch by 17-inch copies. Service to include maintenance and repair to keep copier operational. Lease is up at the closeout of the Contract.
19. Mop and bucket, broom with dustpan.
20. Water Cooler and Service: One cooler and replacement 5-gallon water bottle service for duration of Contract.

C. Computer Accessories/Internet Access:

1. Broadband Internet Service Provider
2. Wireless Router, One: Linksys 2.4 GHz Wireless-G Access Point, Model WAP54G.
3. Power supply surge protector, one; rated at 15 amps minimum.
4. Printer/scanner/fax: Provide one, HP Office Jet 5610 or equal, with postscript and additional memory.
5. Ensure that equipment is set up, connected properly and is functional to the satisfaction of the Owner's Representative.
6. Provide user IDs and passwords required to access and change settings of computer equipment to the Owner and Owner's Representative.

D. Copier Service: Lease of Canon NP6545 (or equal) copier, with scanner, document feeding, auto duplexing, and stapler/sorter. Copier will be capable of producing both 8-1/2-inch by 11-inch, and 11-inch by 17-inch copies. Service to include maintenance and repair to keep copier operational. Lease is up at the closeout of the Contract.

PART 3 EXECUTION

3.01 MOBILIZATION

A. Mobilization shall include, but not be limited to, these principal items:

1. Obtaining required permits.
2. Moving Contractor's field office and equipment onto Site.
3. Providing and setting up Owner's Representative's field office.
4. Installing temporary construction power, wiring, and lighting facilities.
5. Providing onsite communication facilities, including telephones.
6. Providing Owner's Representative's high speed internet service.
7. Providing onsite sanitary facilities and potable water facilities as specified and as required by Laws and Regulations, and governing agencies.
8. Arranging for, setup, and securement of Contractor's work and storage yard.

9. Posting OSHA required notices and establishing safety programs and procedures.
10. Having Contractor's Superintendent at Site full time.

3.02 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed.

3.03 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Install water service and distribution piping in sizes and pressures adequate for the intended use (e.g., TSCA-level material processing area, etc.).

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

D. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for Project operations. Install electric power service overhead unless otherwise indicated.

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install lighting for Project identification sign.

F. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line for each field office.

1. Provide additional telephone lines for the following:
   a. Provide a dedicated telephone line for each facsimile machine in each field office.
   b. Provide one telephone line for Owner's Representative’s use.
2. At each telephone, post a list of important telephone numbers.
   a. Police and fire departments.
   b. Ambulance service.
   c. Contractor's home office.
   d. Contractor's emergency after-hours telephone number.
   e. Owner’s Representative's office.
   f. Owner's office.
   g. Principal subcontractors' field and home offices, if applicable
3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

G. Telecommunications Service:

1. Computer Accessories: Provide required connecting cables and plugs.
2. Provide broadband internet connection with minimum of three live portable computer (PC) ports.
3. Provide appropriate jacks, CAT-5 patch cords, wiring, and equipment required for a complete telecommunications system.
4. Arrange and provide for telecommunication service for use during construction. Pay costs of installation, maintenance, and monthly service of internet connection until Contract closeout.
5. Internet Service: Broadband modem, router and ISP, equipped with hardware firewall, providing minimum 384 Kbps upload and 1 Mbps download speeds at each computer.
6. Backup: External hard drive, minimum 80 gigabyte, with automated backup software for providing daily backups.

H. Cleaning During Construction:

1. In accordance with General Terms and Conditions, as may be specified in other Specification Sections, and as required herein.
2. Provide approved containers for collection and disposal of waste materials, debris, and rubbish. At least at weekly intervals, dispose of such waste materials, debris, and rubbish offsite.

3.04 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area that is noncombustible according to ASTM E 136. Comply with NFPA 241.

2. Maintain support facilities until Owner's Representative schedules Substantial Completion inspection. Remove before Substantial Completion.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved and/or roofed areas adequate for dredging support operations and for TSCA-level sediment staging and processing as described in the TSCA Monitoring Plan. Locate temporary roads and paved areas within construction limits indicated on the Drawings.

1. At a minimum, temporary roads shall be constructed with a geotextile fabric placed over the existing ground surface, 4 inches of a naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve as a base, and 2 inches of a surface course consisting of narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve on top.
2. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.
3. Conduct the Work to interfere as little as possible with public travel, whether vehicular or pedestrian.
4. Conduct operations with the least interference to fire equipment access, and at no time prevent such access. Furnish night emergency telephone numbers to police and fire departments.
5. Coordinate traffic routing with that of others working in same or adjacent areas.

D. Parking: Provide temporary parking areas for construction personnel, Owner, Owner's Representative personnel, and visitors.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Temporary Signs: Provide other signs as indicated and as required to inform the public and individuals seeking entrance to Project.
   a. Provide temporary, directional signs for construction personnel and visitors.

2. Maintain and touchup signs so they are legible at all times. When directed, at the completion of the Project, remove and properly dispose of the signs offsite.

F. Waste Disposal Facilities: Comply with requirements specified in Section 01 74 00, Waste Management and Disposal.

G. Waste Disposal Facilities: Provide waste collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

3.05 SECURITY AND PROTECTION OF FACILITIES AND PROPERTY

A. General:

1. Perform Work in a systematic manner that minimizes inconvenience to the adjacent property owners and the public.
2. No residence or business shall be cut off from vehicular traffic, unless special arrangements have been made.
3. Where completion of the Work requires temporary or permanent removal or relocation of an existing utility, coordinate dredging activities with owner of said utility as necessary.
4. Keep fire hydrants and water control valves free from obstruction and available for use at all times.
5. In areas where Contractor's operations are adjacent to or near a utility that will remain in service, such as gas, telephone, television, electric power, water, sewer, or irrigation system, and such operations may cause damage or inconvenience, suspend operations until arrangements necessary for protection have been made by Contractor.

B. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project support facilities site, in the Buffalo River and Ship Canal and along the shorelines and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

C. Environmental Protection: Provide protection, operate temporary facilities, and conduct dredging and construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Comply with work restrictions specified in Section 01 10 00, Summary of Work, 01 57 19 Environmental Controls, and 01 74 00 Waste Management and Disposal.

D. [MMG1]Erosion and Sedimentation Control: Comply with Section 01 57 23, Storm Water Pollution Control.

E. Stormwater Control: Comply with Section 01 57 23, Storm Water Pollution Control.

F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project support site or portion determined sufficient to accommodate project support operations. Provide the same at the TSCA staging/processing site.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner and one set to Owner's Representative**.**
3. Contractor will be responsible for security of its equipment and materials at the Site during the Work. The Owner assumes no liability for theft of Contractor-supplied equipment or materials.

G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

1. Provide as required by applicable federal, state, and local regulations and in sufficient quantity to safeguard public and the Work.
2. Provide to protect existing facilities and adjacent properties from potential damage.
3. Locate barricades at the nearest intersecting public thoroughfare on each side of the blocked section.
4. Illuminate barricades and obstructions with warning lights from sunset to sunrise.

H. Waterways: Keep waterways continuously free of construction materials and debris.

3.06 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Operate Project-identification-sign lighting daily from dusk until dawn.

D. Termination and Removal: Remove each temporary facility when need for its service has ended or no later than Substantial Completion. Restore site or service to original condition.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves the right to take possession of Project identification signs.
2. Remove temporary roads and paved areas. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. Perform confirmatory sampling as specified and as described in site specific plans.
4. At Substantial Completion, comply with final cleaning requirements specified in Section 01 77 00, Closeout Procedures.

END OF SECTION

SECTION 01 57 19
ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 DESCRIPTION

A. This Section provides requirements for dealing with solid and hazardous waste, hazardous materials, TSCA-level sediments and debris, and associated water dust control, silt and sediment resuspension control, air monitoring, and river water monitoring.

1.02 DEFINITIONS

A. Sediment: Can refer to soil that has eroded and has been transported by runoff water or wind, or soil-like materials removed from the river or Ship Canal by dredging. Note that in New York, per 6 NYCRR 360-1.2(a)4(ix), sediment is exempt from being a solid waste when it is dredged or excavated from the waters of the state and placed or disposed in accordance with a permit(s) issued under Articles 15, 24, 25 or 34 of the Environmental Conservation Law or a Water Quality Certification issued under Section 401 of the Federal Water Pollution Control Act to the extent that both the excavation and disposal of the material is regulated by such permit(s) or certification.

B. Hazardous Waste: Any discarded material, liquid, solid, or gas, which meets the definition of hazardous material or is designated hazardous waste by the Environmental Protection Agency or State Hazardous Control Authority as defined or regulated in NYCRR Parts 360 through Part 376.

C. Hazardous Materials:

1. Hazardous materials as defined in 49 CFR 171 and listed in 49 CFR 172.
2. Hazardous material is any material that:
    a. Is regulated as a hazardous material per 49 CFR 173, or
    b. Requires a Material Safety Data Sheet (MSDS) per 29 CFR 1910.120, or
    c. During end use, treatment, handling, packaging, storage, transpiration, or disposal meets or has components that meet or have potential to meet the definition of a hazardous waste as defined by 40 CFR 261, Subparts A, B, C, or D.
3. Designation of a material by this definition, when separately regulated or controlled by other instructions or directives, does not eliminate the need for adherence to that hazard-specific guidance which takes precedence over this instruction for “control” purposes. Such material

include ammunition, weapons, explosive actuated devices, propellants, pyrotechnics, chemical and biological warfare materials, medical and pharmaceutical supplies, medical waste and infectious materials, bulk fuels, radioactive materials, and other materials such as asbestos, mercury, and polychlorinated biphenyls (PCBs). Nonetheless, the exposure may occur incident to manufacture, storage, use and demilitarization of these items.

D. TSCA-level Wastes: Any sediment, material, liquid, or solid, which meets the definition of a toxic material or is designated toxic waste by the Environmental Protection Agency or State Hazardous Control Authority. Specifically defined for the Project as 40 CFR 76 - Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions and 6 NYCRR Part 371 Identification and Listing of Hazardous Waste, with the TSCA-level sediments also carrying RCRA waste code B007.

E. MSDS: Material Safety Data Sheet.

F. RCRA: Resource Conservation and Recovery Act.

G. Trigger Value: Action Level for turbidity readings at which the automated sampling buoy sends an email notification. Action level shall be set at the values stated in paragraph 3.18 below.

H. TSCA: Toxic Substance Control Act.

I. Waste Hazardous Material: Any waste material which because of its quantity, concentration, or physical, chemical, or infectious characteristics may pose a substantial hazard to human health or the environment and which has been so designated. Used oil not containing any hazardous waste, as defined above, falls under this definition.

J. Oily Waste:

1. Those materials which are, or were, mixed with used oil and have become separated from that used oil. Oily wastes also means materials, including wastewaters, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents which have come into contact with and have been contaminated by, used oil and may be appropriately tested and discarded in a manner which is in compliance with other State and local requirements.
2. This definition includes materials such as oily rags, “kitty litter” sorbent clay and organic sorbent material. These materials may be land filled provided that:
   a. It is not prohibited in other State regulations or local ordinances.
   b. The amount generated is “de minimus” (a small amount).

c. It is the result of minor leaks or spills resulting from normal process operations.
d. All free-flowing oil has been removed to the practical extent possible.

3. Large quantities of this material, generated as a result of a major spill or in lieu of proper maintenance of the processing equipment, are a solid waste. As a solid waste, a hazardous waste determination must be performed prior to disposal. As this can be an expensive process, it is recommended that this type of waste be minimized through good housekeeping practices and employee education.

K. Regulated Waste: Those solid wastes that have specific additional Federal, state, or local controls for handling, storage, or disposal.

1.03 RELATED SECTIONS

A. Section 01 11 01, Health, Safety, Environment and Emergency Response.

B. Section 01 35 91, Protection of Historic Artifacts.

C. Section 01 57 23, Storm Water Pollution Control.

D. Section 01 74 00, Waste Management and Disposal.

E. Section 02 83 00, Contact Water Treatment System.

1.04 SECTION 31 25 00, EROSION AND SEDIMENTATION CONTROLS. SUBMITTALS

A. Informational Submittals:

1. Current Conditions Documentation.
2. Post-remedial Conditions Documentation.

B. Action Submittals:

1. Solid Waste Management Plan.
2. Regulatory Notifications.
3. Environmental Management Plan.
4. Community Air Monitoring Plan.
5. Fugitive Emissions and Odor Suppression Plan.
6. Contractor Hazardous Material Inventory Log.
7. Silt Curtain Shop Drawings.
8. Silt Curtain Manufacturer’s Qualifications.
9. Temporary Water Treatment System Information.

C. Test Reports (Informational Submittals):

1. Laboratory Analysis.
2. Disposal Profile and Acceptance.
3. Erosion and Sediment Control Inspection Reports.
4. Solid Waste Management Report.
5. TSCA-Area Data Reports.

D. Closeout Submittals (Informational Submittals): Some of the records listed below are also required as part of other submittals. For the "Records" submittal, maintain onsite a separate three-ring Environmental Records binder and submit at the completion of the Project. Make separate parts to the binder corresponding to each of the applicable sub-items listed below.

1. Storm Water Pollution Prevention Plan compliance notebook.
2. Waste Determination Documentation.
3. Disposal Documentation for Hazardous and Regulated Waste.
4. Solid Waste Management Permit.
5. Solid Waste Management Report.
6. Contractor Hazardous Material Inventory Log.
7. Hazardous Waste/Debris Management Report.
8. Regulatory Notifications.

1.05 ENVIRONMENTAL PROTECTION REQUIREMENTS

A. Provide and maintain, during the life of the Contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the Project. Comply with Federal, State, and local regulations pertaining to the environment including water, air, solid waste, hazardous waste and substances, toxic wastes and substances, oily substances, and noise pollution.

B. The Contractor may be required to promptly conduct tests and procedures for the purpose of assessing whether construction operations are in compliance with Applicable Environmental Laws. Analytical work shall be done by qualified laboratories; and where required by law, the laboratories shall be certified.

C. Comply with the requirements in the attached River Water Monitoring Plan.

1.06 QUALITY ASSURANCE

A. Current Conditions Documentation: Photograph or video record all preconstruction conditions at the CDF offloading area(s), the TSCA staging/ processing area, and at each of the habitat restoration areas prior to commencement of work including adjacent properties, foliage, sewer grates, access roads, boat ramps, sheet pile walls along stream banks, bridge or culverts, surface and above grade utilities, appurtenances, guardrails, and trees. Additional areas include soil staging areas and all areas adjacent to dredged management units (DMUs).

B. Post-Remedial Conditions Documentation:

1. Photograph or video record all post-remedial conditions at the locations documented prior to construction activities.
2. If work in a location has been started but a delay of 3 months or longer will transpire before work resumes, including for winter demobilization/ remobilization, then photograph and document conditions at the location within 1 week of the initial shutdown.

C. Regulatory Notifications:

1. The Contractor is responsible for all regulatory notification requirements in accordance with Federal, State and local regulations. The Contractor shall submit copies of all regulatory notifications to the Owner’s Representative prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all inclusive): demolition, renovation, State Pollution Discharge Elimination System (SPDES) defined site work, remediation of controlled substances (asbestos, hazardous waste, lead paint).
2. For the manifesting of the TSCA-level waste, the Owner will obtain and provide the RCRA Generator ID number.

D. Environmental Brief:

1. Attend an environmental briefing as part of the preconstruction meeting. Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the Project site and the activity; types and quantities of wastes/wastewater that may be generated during the contract. Discuss proper storage and management of these materials and the results of the documentation of existing conditions at this time.
2. Prior to initiating any work onsite, meet with the Owner and Owner’s Representative to discuss the proposed Environmental Management Plan. Develop a mutual understanding relative to the details of environmental protection including measures for protecting natural

resources, required reports, required permits, permit requirements, and other measures to be taken.

E. Environmental Manager: Appoint in writing an Environmental Manager for the Project site. The Environmental Manager will be directly responsible for coordinating Contractor compliance with Federal, State, and local requirements. The Environmental Manager will assure compliance with TSCA and Hazardous Waste Program requirements (including hazardous waste handling, storage, manifesting, and disposal); implement the Environmental Management Plan; assure that all environmental permits are obtained, maintained, and closed out; ensure compliance with Storm Water Program Management requirements; ensure compliance with Spill Prevention, Control and Countermeasure requirements if applicable, assure compliance with Hazardous Materials (storage, handling, and reporting) requirements; and coordinate any remediation of regulated substances (PCB contaminated sediments). This can be a collateral position; however the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure all Contractor personnel are trained in 40 CFR or 6 NYCRR requirements in accordance with their position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and closeout.

PART 2 PRODUCTS

2.01 SILT CURTAIN SYSTEM

A. Silt curtain shall be a containment system consisting of floating boom with flotation media, filtration curtain, load bearing members, mooring lines and anchoring system. Silt curtain shall be designed to be effective and stable in the flow velocities of the Buffalo River.

1. Flotation shall be an integral part of the curtain. Flotation media shall be polystyrene buoyant units attached to the filtration media. Buoyancy provided shall be sufficient to support the weight of the curtain under load and maintain a freeboard of at least 6 inches above the water.
2. Filter media shall consist of oleophilic materials that are UV-stabilized, biofouling-resistant, nontoxic and performance tested in aquatic environments. Impermeable material used in the hood shall be Polyester based, copolymer strengthened, nontoxic and performance tested in aquatic environment.
3. The bottom of the silt curtain shall be ballasted with chain at the outer edge to maintain the filter barrier.

4. Load bearing members must be fabricated into the top and bottom of the filter barrier. The top and bottom load member shall consist of woven webbing that shall have break strength in excess of 10,000 pounds. Additional load bearing members shall be located at the base of the curtain and at the end of the curtain, these shall consist of a chain of sufficient weight to serve as ballast and to hold the curtain in a vertical position throughout seiche cycles. Connections of the load bearing members shall be of equal or greater breaking strength of the load bearing members.
5. An anchoring system shall be designed to keep the silt curtain in place during peak flows and seiche extremes. Type and size of anchors shall be site specific and installed by qualified personnel to fully support the loads described below and as recommended by the manufacturer.

B. Performance Criteria:

1. Silt curtain shall control silt and turbidity such that the requirements of the Order of Conditions, Department of the Army Permit and 401 Water Quality Certificate are met.
2. Silt curtain shall be designed to remain in place for the duration of the Work in that location.
3. The silt curtain shall be installed and maintained in a manner that will contain silt and turbidity between the dredging operation and the control system, and prevent turbidity, or impacts to water quality in the Buffalo River that violate the NYSDEC Surface Water Quality Regulations; Federal Clean Water Act Regulations; requirements of the Project-specific Permits, the 401 Water Quality Certificate or Order of Conditions; or result in degradation of water quality beyond conditions existing in the Buffalo River prior to construction.
4. Structure of system shall be designed to resist maximum loading. Minimum requirements of the system are as follows:
    a. Be fully functional in wind-driven wave action up to 3 feet.
    b. Load resistance of up to 10 pounds per square foot.
    c. Be fully functional during storm events or wind generated water currents of 2 feet per second.
    d. Be fully functional during seiche changes of up to plus or minus 3 feet.
5. The system shall be designed and stamped by a registered Professional Engineer with direct experience in the design and deployment of silt curtains. The Professional Engineer shall provide structural calculations proving the criteria are met. Silt Curtain shop drawing and manufacturer’s qualifications submittals shall be approved by Owner or Owner’s Representative prior to deployment of the curtain.

2.02 SILT CURTAIN MATERIALS

A. Nonwoven (interior) Curtain Fabric Material: Interior filter fabric shall be nonwoven comprised of 100 percent polypropylene filaments, needle punched and heat set. Nonwoven fabric shall have the following minimum properties:

Properties	Results
Weight	10.0 oz/yd^2
Tensile Strength	250 lbs
Elongation @ Break	50 %
CBR Puncture Strength	700 lbs
Trapezoidal Tear	100 lbs
AOS – US Std Sieve	100
Permittivity	1.2 sec^{-1}
U.V. Resistance	70 % (500 hrs)

B. Woven (exterior) Curtain Fabric Material: Exterior filter fabric shall be woven comprised of 100 percent polypropylene filaments, needle punched and heat set. Woven fabric shall have the following minimum properties:

Properties	Results
Weight	6.0 oz/yd^2
Tensile Strength	360 lbs
Elongation @ Break	24 %
CBR Puncture Strength	650 lbs
Trapezoidal Tear	110 lbs
AOS – US Std Sieve	30
Permittivity	2.1 sec^{-1}
U.V. Resistance	90 % (500 hrs)

C. Impermeable Fabric Material: Impermeable material used for flotation hood or curtain components shall be Polyester based copolymer strengthened and have the following minimum properties:

Properties	Results
Fabric Weight	6 oz/yd^2
Coated Weight	28 oz/yd^2
Grab Tensile Strength	625 lbs
Thickness	30 mils

Properties	Results
Ply Adhesive	15 lbs/in
Tongue Tear	150 lbs

D. Anchoring System:

1. Bottom chain shall be incorporated into a chain pocket at the bottom of the curtain and at the bottom of both skirts. Chain shall be 1/2 inch, galvanized.
2. Mooring attachment points shall be comprised of galvanized D-ring plates with D-rings of no less than 3/8-inch diameter, installed every 10 feet along the curtains. D-ring plates shall be fasted through load bearing member with 3/8-inch stainless steel carriage bolts with stainless steel washers and a stainless steel Nylok nut. Lower anchoring connection points shall be tied into vertical load bearing members each 10 feet as well as into the chain at the end of the Y-skirt.

2.03 AUTOMATED SAMPLING BUOY FOR WATER QUALITY MONITORING

A. An automated sampling buoy will incorporate the use of a programmable sampling device that can obtain an aliquot subsample once an hour for 24-hour period in order to provide a 24-hour composite sample. Sampling tube attached to the sampling buoy shall be placed at the approximate mid-depth of the water column. Total 24-hour sample volume shall be minimum 3 liters, 4 liters is preferred.

B. As part of the automated sampling buoy, a water monitoring device will be mounted to the buoy to measure turbidity. The setup shall be capable of transferring turbidity readings by cellular modem telemetry. Data from the turbidity sensors also will be stored in an integrated data logger that can be accessed in the event the telemetry system is inoperable.

C. The turbidity monitoring setup shall be equipped with the means of sending out an automated email notification to Owner's Representative and Contractor's field personnel based on a trigger value.

D. A total of four automated sampling buoys shall be used for this Project, not including any spare units or parts that might be necessary to have on hand for adequate backup.

E. Sampling data and recorded turbidity readings shall be submitted to Owner and Owner's Representative in accordance with the frequency stated in the River Water Monitoring Plan(See Appendix H of the BODR).

2.04 CURRENT METER

A. Current meter capable of being manually lowered into river to measure flow velocity attached to nylon rope.

PART 3 EXECUTION

3.01 ENVIRONMENTAL MANAGEMENT PLAN

A. Prior to initiating any work onsite, the Contractor will meet with the Owner's Representative to discuss the proposed Environmental Management Plan and develop a mutual understanding relative to the details of environmental protection including measures for protecting natural resources, required reports, and other measures to be taken. The Environmental Management Plan will be submitted in the following format and shall include the elements specified below.

1. Description of the Environmental Management Plan:
    a. General Overview and Purpose:
        1) A brief description of each specific plan required by environmental permit or elsewhere in this Contract.
        2) The duties and level of authority assigned to the person(s) on the jobsite that oversee environmental compliance.
        3) A copy of any standard or Project-specific operating procedures that will be used to effectively manage and protect the environment on the Project site.
        4) Communication and training procedures that will be used to convey environmental management requirements to contractor employees and subcontractors.
        5) Emergency contact information (office phone number, cell phone number, and e-mail address).
    b. General site information.
    c. A letter signed by an officer of the firm appointing the Environmental Manager and stating that he/she is responsible for managing and implementing the Environmental Program as described in the Contract. Include in this letter the Environmental Manager's authority to direct the removal and replacement of nonconforming work.
2. Management of Contaminated Sediment and Debris (TSCA-level and non-TSCA-level):
    a. Objectives.
    b. Methods.
    c. Compliance with the attached River Water Monitoring Plan.
3. Management of Natural Resources:
    a. Land resources.

b. Tree protection.
c. Replacement of damaged landscape features.
d. Temporary construction.
e. Stream crossings.
f. Fish and wildlife resources.
g. Wetland areas.

4. Protection of Historical and Archaeological Resources:
   a. Objectives.
   b. Methods.
   c. Coordination with State Historic Preservation Office.
5. Storm Water Management and Control: Refer to Section 01 57 23 Storm Water Pollution Control.
6. Soil Erosion and Sediment Control: Refer to Section 31 25 00, Erosion and Sedimentation Controls.
7. Resuspension and Turbidity Control:
   a. Objectives.
   b. Methods.
   c. Reporting of Results.
8. Protection of the Environment from Waste Derived from Contractor:
   a. Control and disposal of solid and sanitary waste.
   b. Control and disposal of hazardous waste (Hazardous Waste Management Section):
      1) This item will consist of the management procedures for all hazardous waste that is generated. The elements of those procedures will coincide with the Activity Hazardous Waste Management Plan. A copy of the Activity Hazardous Waste Management Plan will be provided by the Contracting Officer. As a minimum, include the following:
         a) Procedures to be employed to ensure a written waste determination is made for appropriate wastes which are to be generated.
         b) Sampling/analysis plan.
         c) Methods of hazardous waste accumulation/storage (i.e., in tanks and/or containers).
         d) Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted).
         e) Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions 6 NYCRR 376.
         f) Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and the like.

g) Used oil management procedures in accordance with 40 CFR 279.
h) Pollution prevention/hazardous waste minimization procedures.
i) Plans for the disposal of hazardous waste by permitted facilities.
j) Procedures to be employed to ensure all required employee training records are maintained.

9. Prevention of Releases to the Environment:
   a. Procedures to prevent releases to the environment including during in-water fueling.
   b. Notifications in the event of a release to the environment.
10. Regulatory Notification and Permits: List what notifications and permit applications must be made. Demonstrate that those permits have been obtained by including copies of all applicable, environmental permits.

B. Environmental Management Plan: Review: Within 30 days after the Contract award date, submit the proposed Environmental Management Plan for further discussion, review, and approval. Commencement of Work will not begin until the Environmental Management Plan has been approved.

C. Licenses and Permits: The following planning or permitting will be completed by the Owner's Representative or Owner or Contractor or Others as indicated:

1. TSCA Risk Evaluation Report (prepared by others).
2. TSCA Notification and Certification (Contractor's responsibility).
3. Joint Permit Application which incorporates requirements of Section 10 of the Rivers and Harbor Act of 1899, Section 404 of the Clean Water Act (CWA), Section 401 of the CWA (including NYSDEC Water Quality Certification (WQC) and an Article 15-Protection of Waters Permit), Nationwide Permit 27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities (NWP 27) and Nationwide Permit 38 for Cleanup of Hazardous and Toxic Waste (NWP 38), both of which are issued by the USACE Buffalo District. (prepared by others).
4. CDF use in accordance with Section 123 of the Rivers and Harbors Act (prepared by others).
5. Preparation of a Full Environmental Assessment Form and an Environmental Assessment of the dredging project in accordance with 6 NYCRR Part 617 State Environmental Quality Review (SEQR) (prepared by others).
6. Waste characterization profile and disposal facility acceptance of the TSCA-level sediment, in accordance with the TSCA Monitoring Plan which is in Appendix H to the Basis of Design reports (to be obtained by Contractor).

7. Consultation regarding endangered and threatened species and cultural resources to determine whether an additional plans or actions are needed to protect such resources (performed by others).
8. Coordination with the U.S. Coast Guard regarding a Notice to Mariners (to be performed by Contractor).
9. Preparation of a Stormwater Pollution Prevention Plan in accordance with the SPDES General Permit for Construction Activity (obtained by Contractor) and in accordance with Section 01 57 23, Stormwater Pollution Control.
10. Preparation of a SPDES Discharge permit or Buffalo NY Sewerage Authority Pretreatment Permit for discharge of treated water from the TSCA processing facility (to be obtained by Contractor)
11. Preparation of a Control Program for Temporary Discharge Permit Application to the Buffalo NY Sewer Authority Sewer Use Regulation Part 10075 Article VI, Section 14 and in Article 2 Regulations of the Temporary Discharge Permit obtained by Contractor).
12. Characterization and suitability determination of maintenance dredge material for beneficial reuse for capping or habitat purposes. If material is suitable, additional permitting will be required (by others).
13. A temporary building permit will be required for any support structures. The City of Buffalo will require a survey, a site plan, and a description of the type and configuration of any structures that will be erected as part of the application (to be obtained by the Contractor).
14. A NYSDOT permit for work in the vicinity of the Skyway bridge foundations (to be obtained by the Contractor).

D. According to the USACE, there are no wetlands found in the proposed Project Area and hence no wetland permits are needed.

3.02 COMMUNITY AIR MONITORING PLAN

A. Refer to Section 01 11 01, Health, Safety, Environment and Emergency Response. Refer to the TSCA Monitoring Plan which is in Appendix H to the Basis of Design reports.

3.03 FUGITIVE EMISSION AND ODOR SUPPRESSION PLAN

A. Refer to Section 01 11 01, Health, Safety, Environment and Emergency Response.

B. Refer to the TSCA Monitoring Plan which is in Appendix H to the Basis of Design reports.

3.04 PROTECTION OF NATURAL RESOURCES

A. Preserve the natural resources within the Project boundaries and outside the limits of Work. Restore to an equivalent or improved condition upon completion of Work. Confine construction activities to within the limits of Work indicated or specified. Conform to the national permitting requirements of the Clean Water Act.

B. Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the Project and critical to the survival of fish and wildlife, except as indicated or specified.

C. Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Owner’s Representative's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Owner’s Representative. Where such use of attached ropes, cables, or guys is authorized, the Contractor will be responsible for any resultant damage.

D. Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. By approved excavation, remove trees with 30 percent or more of their root systems destroyed. Remove trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain Owner’s Representative's approval before replacement.

E. Erosion and Sediment Control Measures: Comply with Section 01 57 23, Storm Water Pollution Control, and with Section 31 25 00, Erosion and Sedimentation Controls.

3.05 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

A. Comply with Section 01 35 91 Protection of Historic Artifacts.

3.06 SOLID WASTE MANAGEMENT PLAN AND PERMIT

A. Comply with Section 01 74 00, Waste Management and Disposal.

3.07 WASTE DETERMINATION DOCUMENTATION

A. Complete a Waste Determination form (provided at the preconstruction conference) for all Contractor-derived wastes to be generated. Base the waste determination upon either a constituent listing from the manufacturer used in conjunction with consideration of the process by which the waste was generated, EPA approved analytical data, or laboratory analysis (Material

Safety Data Sheets [MSDSs] by themselves are not adequate). Attach all support documentation to the Waste Determination form. As a minimum, a Waste Determination form must be provided for the following wastes (this listing is not all inclusive): oil and latex based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and all containers of the original materials.

3.08 CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG

A. Submit the "Contractor Hazardous Material Inventory Log, which provides information required by EPCRA Sections 312 and 313 along with corresponding MSDSs to the Owner's Representative at the start and at the end of construction (30 days from final acceptance), and update no later than January 31 of each calendar year during the life of the Contract. Documentation for any spills/releases, environmental reports or offsite transfers may be requested by the Owner's Representative.

1. Disposal Documentation for Hazardous and Regulated Waste:
   a. Manifest, pack, ship and dispose of hazardous or toxic waste and universal waste that is generated as a result of construction in accordance with the generating facilities generator status under the Resource Conservation and Recovery Act (RCRA). Contact the Owner's Representative for the facility RCRA identification number that is to be used on each manifest.
   b. Submit a copy of the applicable EPA and or State permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities. Hazardous or toxic waste manifest must be reviewed, signed, and approved by the Owner's Representative before the Contractor may ship waste.

3.09 POLLUTION PREVENTION/HAZARDOUS WASTE MINIMIZATION

A. Minimize the use of hazardous materials and the generation of hazardous waste. Include procedures for pollution prevention/hazardous waste minimization in the Hazardous Waste Management Section of the Environmental Management Plan. Describe the types of the hazardous materials expected to be used during the Work.

3.10 HAZARDOUS MATERIAL MANAGEMENT

A. No hazardous material shall be brought onto Project site that does not directly relate to requirements for the performance of this Contract.

B. Include hazardous material control procedures in the Safety Plan. Address procedures and proper handling of hazardous materials, including the

appropriate transportation requirements. Submit an MSDS and estimated quantities to be used for each hazardous material to the Owner's Representative prior to bringing the material on base. At the end of the Project, provide the Owner's Representative with the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the Project, and how the material was used. Ensure that hazardous materials are utilized in a manner that will minimize the amount of hazardous waste that is generated. Ensure that all containers of hazardous materials have NFPA labels or their equivalent. Keep copies of the MSDS for hazardous materials onsite at all times and provide them to the Owner's Representative at the end of the Project. Certify that all hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste per 40 CFR 261.

3.11 PETROLEUM PRODUCTS AND REFUELING

A. Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation. Manage all used oil generated onsite in accordance with 6 NYCRR 360-14. Determine if any used oil generated while onsite exhibits a characteristic of hazardous waste. Used oil containing 1,000 parts per million or greater of solvents will be considered a hazardous waste and disposed of at Contractor's expense. Used oil mixed with a hazardous waste will also be considered a hazardous waste.

1. Oily and Hazardous Substances: Prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters. In accordance with 40 CFR 112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm will be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs.
2. Inadvertent Discovery of Petroleum Contaminated Soil or Hazardous Wastes: If petroleum contaminated soil or suspected hazardous waste is found during the Project that was not identified in the Contract Documents, the Contractor shall immediately notify the Owner's Representative. The Contractor shall not disturb this material until authorized by the Owner's Representative.

3.12 FUEL TANKS

A. Petroleum products and lubricants required to sustain up to 30 days of construction activity may be kept onsite in accordance with applicable regulations including 6 NYCRR 596. If greater than 1,320 gallons of capacity

are provided, New York Spill Prevention, Control, and Countermeasure regulations will be followed. Storage and refilling practices shall comply with 6 NYCRR 613. Secondary containment shall be provided and be no less than 110 percent of the tank volume plus 5 inches of free-board. If a secondary berm is used for containment then the berm shall be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Drip pans are required and the tanks must be covered during inclement weather.

3.13 RELEASES/SPILLS OF OIL AND HAZARDOUS SUBSTANCES

A. Exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated by environmental law. Maintain spill cleanup equipment and materials at the work site. In the event of a spill, take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Owner’s Representative.

B. The Contractor is responsible for verbal and written notifications as required by the Federal 40 CFR 355, State 6 NYCRR 595, and local authorities. Spill response will be in accordance with 40 CFR 300 and applicable State and local regulations. Contain and clean up these spills without cost to the Owner. If Owner assistance is requested or required, the Contractor will reimburse the Owner for such assistance. Provide copies of the written notification and documentation that a verbal notification was made within 20 days.

C. Maintain spill cleanup equipment and materials at the work site. Contractor is responsible for clean up all hazardous and nonhazardous waste spills and oil sheens that occur as a result of the dredging and capping operations. The Contractor shall bear the cost for all material, equipment, and clothing generated during any spill cleanup. The Contractor shall pay for all costs incurred including sample analysis materials, equipment, and labor if the Owner must initiate its own spill cleanup procedures, for Contractor responsible spills, when:

1. The Contractor has not begun spill cleanup procedure within 1 hour of spill discovery/occurrence, or
2. If, in the Owner's judgment, the Contractor's spill cleanup is not adequately abating life threatening situation and/or is a threat to any body of water or environmentally sensitive areas.

3.14 CONTROL AND MANAGEMENT OF HAZARDOUS WASTES

A. Facility Hazardous Waste Generator Status: The Buffalo River AOC Environmental Dredging Project is designated as a Large Quantity Generator. All work conducted within the boundaries of this activity must meet the regulatory requirements of this generator designation. The Contractor will comply with all provisions of Federal, State and local regulatory requirements applicable to this generator status regarding training and storage, handling, recordkeeping and reporting disposal of all construction derived wastes.

B. Hazardous Waste/Debris Management:

1. Identify all construction activities which will generate hazardous waste/debris. Provide a documented waste determination for all resultant waste streams. Hazardous waste/debris will be identified, labeled, handled, stored, and disposed of in accordance with all Federal, State, and local regulations.
2. Hazardous waste will also be managed in accordance with the approved Environmental Management Plan. Hazardous waste generated as a result of this Project will be identified as being generated by the USEPA.
3. Prior to removal of any hazardous waste from the property, all hazardous waste manifests must be signed by the Owner's Representative as agent for the USEPA. No hazardous waste shall be brought onto Project site. Provide to the Owner's Representative a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372, Subpart D.
4. Regulated Waste Storage/Satellite Accumulation/90-Day Storage Areas:
   a. If the work requires the temporary storage/collection of regulated or hazardous wastes, the Contractor will request the establishment of a Regulated Waste Storage Area, a Satellite Accumulation Area, or a 90-Day Storage Area at the point of generation. The Contractor must submit a request in writing to the Owner's Representative providing the following information:

Contract Number	Contractor
Haz/Waste or	
Regulated Waste POC	Phone Number
Type of Waste	Source of Waste
Emergency POC	Phone Number

Location of the Site:
(Attach Site Plan to the Request)

b. Attach a waste determination form. Allow 10 working days for processing this request. The designated area where waste is being stored shall be barricaded and a sign identifying as follows:

"DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

5. Sampling and Analysis of Hazardous Waste:
   a. Waste Sampling: Sample waste in accordance with disposal facility requirements. Each sampled drum or container will be clearly marked with the Contractor's identification number and cross referenced to the chemical analysis performed.
   b. Laboratory Analysis: Follow the analytical procedure and methods in accordance with the 6 NYCRR Part 371. The Contractor will provide all analytical results and reports performed to the Owner’s Representative.
   c. Analysis Type: Identify waste hazardous material/hazardous waste by analyzing for the following properties as a minimum, in addition to the analysis required by the disposal facility: ignitability, corrosiveness, total chlorides, BTU value, TCLP for heavy metals, cyanide and the contaminants of concern for the site (Lead, Mercury, PAHs, and PCBs).
6. Hazardous Waste Disposal: Dispose of all TSCA-level waste in accordance with Federal 40 CFR 761.61, Subpart D and State Regulations, 6NYCRR, Part 371.4, Waste Code B007.

3.15 AIR POLLUTION CONTROL

A. Dust Control: Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the staging/processing site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Strictly adhere to applicable environmental regulations for dust prevention.

B. Minimize air pollution from the construction activities. Burning of waste materials, rubbish, or other debris will not be permitted on or adjacent to site.

3.16 TEMPORARY WATER TREATMENT SYSTEM MONITORING

A. Mobilize and setup at the TSCA staging property a Temporary Water Treatment System (TWTS) in accordance with Section 02 83 00, Contact Water Treatment System.

B. Discharge treated water from the temporary water treatment system to either the sanitary sewer of the Buffalo Sewer Authority under a temporary discharge permit or discharge to the Buffalo River after treatment under a New York SPDES permit. If effluent is discharged to Buffalo Sewer Authority submit copy of temporary discharge permit and pretreatment requirements, if any. If effluent is discharged to the Buffalo River, submit copy of SPDES permit application and issued permit, including process flow diagram, equipment sizing, and supporting calculations.

C. If required by the permit, hold effluent water from TWTS in batches and test each batch for parameters identified in Buffalo Sewer Authority temporary discharge permit or the SPDES permit prior to discharge.

D. Submit samples of effluent collected from TWTS holding tank(s) to an offsite laboratory for analysis. Discharge treated water once post-treatment samples indicate no exceedance of discharge criteria. Analytical requirements will be determined based on the permit requirements, but for bidding the contractor shall assume the parameters would be PCBs, oil and grease, metals, VOCs, PAH, pH, and total suspended solids.

3.17 SILT AND SEDIMENT CONTROL (IN WATER)

A. Shop Drawings:

1. Provide Project-specific information as required and as necessary to clearly show calculations, dimensions, logic and assumptions, and referenced standards and codes on which design is based.
2. Provide manufacturer’s literature, illustrations, specifications and identification of materials of construction, rated capacities, dimensions of individual components, profiles and finishes.
3. Make model and weight of each component.
4. Detailed structural drawings showing the component fabrications and the interfaces with other components. Include dimensions, size, and location of connections to Work under other Sections.
5. Setting drawings, templates and directions for installation of anchor bolts and other anchorages.

B. Examination:

1. Inspect and verify that structures or surfaces on which equipment will be installed have no defects which will adversely affect installation.
2. Inspect all equipment prior to installation.
3. Promptly report defects which may affect the Work to the Owner’s Representative.
4. Visually inspect surface water and silt curtain a minimum of three times per day and maintain a log documenting the observations. If such

inspection reveals that additional measures are needed to prevent movement of silt, promptly notify the Owner's Representative and install additional devices as needed. Sediment controls in need of maintenance shall be repaired promptly.

C. Preparation:

1. All bulkheads onsite are to be considered non-structural and must not be damaged or punctured due to silt curtain installation.
2. There may be existing concrete debris on the river bed that may need to be removed prior to silt curtain installation. Contractor to coordinate with Manufacturer to determine the extent of debris removal necessary for installation.

D. Assembly and Installation: Assembly and installation shall be according to the manufacturer's specifications.

E. Sequencing:

1. Silt curtain shall be installed prior to the start of Work up-gradient and down-gradient of the area to be dredged.
2. Silt curtain shall remain in place throughout debris removal and dredging operations until removal is approved by Owner or Owner's Representative.

F. Maintenance:

1. Perform the following maintenance of the silt curtain and also perform all other work necessary to keep the barrier operating efficiently during all construction activities:
   a. Provide additional pile anchors or other suitable means to secure the barrier against wind, waves, ice, boat activity, dredging and other forces acting on the barrier as required to maintain the intended function.
   b. Keep all anchor lines secure and properly positioned to maintain efficient operation and positioning of the barrier.
   c. Collect sediments as necessary to avoid potential water quality impacts or potential failure of the silt curtain. Collected sediments shall be processed with other sediment generated at the site.
   d. Immediately contain, collect or otherwise mitigate the migration of sediments that are released from within the area protected by the silt curtain.
   e. Immediately replace any portions of the silt curtain that are damaged while the silt curtain is deployed. Damaged sections must be replaced by new sections of silt curtains. Use of patched sections is prohibited.

2. Protect and maintain silt curtain throughout work up-gradient and down-gradient of DMUs designated to require silt curtains.

G. Removal and Disposal:

1. The silt curtain shall be removed following approval of Owner or Owner's Representative.
2. Allow sufficient time from completion of construction activities to allow suspended sediments within the area contained by the silt curtain to settle to the river bottom before removing the system. Maintain all turbidity control equipment surrounding work areas until all suspended sediment within the work areas has settled and water quality is equal to the background sample levels for the contained area. Data indicating this criteria has been met shall be submitted and approved by Owner or Owner's Representative before the turbidity control equipment is removed.
3. Collect sediments contained by or adhered to the barrier. Manually remove residual sediments attached to the barrier. Collected sediments shall be disposed in the unprocessed material stockpile area.
4. Prevent release of sediments to the water body during removal of the system.
5. Dispose of the silt curtain offsite. If temporary storage is necessary, temporarily store the silt curtain by encapsulating with polyethylene or containerizing.

H. When to Use:

1. Silt curtains shall be used as described in Section 35 20 23.13, Environmental Dredging.
2. Silt curtain usage shall comply with NYSDEC TOGs 5.1.9.

3.18 WATER QUALITY MONITORING (TURBIDITY)

A. Additional details regarding river water quality monitoring are included in the River Water Monitoring Plan, which is in Appendix H of the Basis of Design Report.

B. Turbidity Threshold Value:

1. Initially, a value of 100 NTUs (nephelometric turbidity units) will be the threshold value. If a downcurrent turbidity reading is more than 100 NTUs above an upcurrent reading, this will be a trigger to evaluate dredging activities.

2. Contractor will perform total suspended solids sampling and turbidity monitoring shortly after dredging begins to establish a Project-specific correlation between the two parameters. The Project-specific correlation will establish a new turbidity threshold value. Implementation of revised values will be coordinated with EPA and NYSDEC.

C. River Water Flow Monitoring:

1. Use a flow meter to obtain flow velocity and direction in the Buffalo River ("towards the lake" or "away from the lake").
2. Obtain measurement from mid-channel and approximately 10 feet below the water surface. Suggested location is from the Ohio Street Bridge.
3. Obtain readings once every 6 hours on a 24-hour basis while dredging and cap placement activities are ongoing. Provide readings in the Daily Report.
4. Results of river flow monitoring will be used to determine "upstream" and "downstream" relative to turbidity monitoring during dredging operations.

D. Sampling Buoy Positioning:

1. Utilize a single upcurrent and a single downcurrent sampling buoy when using two dredging platforms and they are sufficiently close to one another (within 800 feet) such that the individual dredging operations can be evaluated as a group.
2. Utilize a single upcurrent and a single downcurrent sampling buoy for each dredge platform when using two dredging platforms and they are operating at a sufficient distance (greater than 800 feet) away from each other.
3. Locate the upcurrent and downcurrent sampling buoys no further than 800 feet from the dredge operation(s).

E. Turbidity Readings:

1. Turbidity readings shall be recorded once every 15 minutes at the each buoy and automatically uploaded to a website within 5 minutes of obtaining each reading or similar method of data transfer.
2. The turbidity monitoring setup shall be equipped with the means of sending out an automated email notification based on readings. If either buoy associated with a dredge platform has a reading above the threshold value, an email will be automatically sent out to the Contractor's field personnel and the Owner's Representative.

3. Should the threshold alert email be sent, Owner's Representative will calculate the increase in turbidity reading between the upstream and downstream buoys as outlined below. Contractor shall provide the latest flow direction information to the Owner's Representative to enable this calculation.
    a. A rolling average of 16 consecutive readings (4-hour) will be used as the basis of comparison. The rolling average value of the upcurrent(background) location will be compared to the rolling average value of the downcurrent location.
    b. If an obvious outlier appears, it will be eliminated from the rolling average calculation. An outlier is defined as a reading that is outside the range of 50 to 200 percent of the average of the three previous readings. In addition, to be considered an outlier, the following reading must return to a range of 75 to 133 percent of the average of the three readings preceding the outlier. In practice, it is common to get occasional one-time spikes that cannot be tied to activities in the water. If this happens regularly (that is, more frequently than twice per day), the Contractor shall inspect and clean, repair, or replace the sensor.

F. Mitigation Measures:

1. If, after employing the best management practices listed in Section 35 20 23.13, Environmental Dredging, an exceedance of the turbidity criteria above ambient background conditions is reported, mitigation measures shall be employed if it is determined that the cause for the exceedance is related to remedial activities. Mitigation measure shall be employed within 4 hours of such a determination. Contractor shall notify Owner and Owner's Representative of the mitigation measure or measures to be employed. Possible mitigation measures are:
    a. Reducing the dredging operations removal rate or temporarily suspending dredging operations.
    b. Minimize "bucket decanting" so that the amount of water draining from the dredge bucket back into the river is minimized.
    c. Implement the use of silt curtains to limit the dispersion of resuspended sediments.
    d. If silt curtains have already been established around the dredging operation(s) where the confirmed exceedance was obtained, an additional silt curtain layer could be established around the dredging operation in question.
2. Depending upon the situation in which the confirmed exceedance is reported, a single mitigation measure may be used to correct the issue or a combination of measures may be implemented. As more data are obtained as part of the real-time turbidity monitoring, additional

mitigation measures may be developed and implemented, or the additional measures suspended if values are significantly lower.

3.19 WATER QUALITY MONITORING (CHEMICAL ANALYSES)

A. Frequency of Monitoring:

1. During the initial two weeks of dredging operations, water samples will be collected daily (i.e., a 24-hour composite sample shall be generated each day from each sampling buoy).
2. After the initial 2-week sampling period, if it is demonstrated that the dredging operations do not result in TSS levels greater than 100 mg/L above ambient background conditions (or turbidity levels 100 NTUs above ambient background, assuming a 1 mg/L to 1 NTU correlation between TSS and turbidity), the sampling frequency shall be reduced to a single 24-hour composite sample from each sampling buoy per week.
3. If sampling continues to demonstrate that dredging operations do not result in increases of over 100 mg/L in TSS concentrations above ambient conditions, then sampling frequency may be reduced after coordination with NYSDEC.

B. Sampling shall be accomplished by a sampling crew whose primary responsibility will be to collect the sample containers that are filled by the automated sampling buoys and relocate the automated sampling buoys, when necessary.

C. Samples shall be filtered using a 0.45-micron filter prior to sample preservation. Turnaround time of chemical analyses for surface water monitoring will be 72 hours.

D. Provide samples to a certified local laboratory as shown on Tables 1 and 2 below. The estimated numbers of samples in Table 1 is presented for illustrative purposes. The actual number of samples required will be based on conditions encountered during construction:

TABLE 1
Estimated Number of Samples for river water Monitoring Buffalo River AOC Final Design

Source	Matrix	Contaminants of Concern	Estimated No. of Locations	Estimated No. of Samples	Estimated No. of QC Samples[a]	Total Number of Samples for Analysis
Initial Dredging Operations: 2 weeks	Water: 24-hour composite field filtered	TSS, PCBs, PAH[b], lead, copper and mercury	4	56	6	62
Initial Dredging	Water – grab	TSS	N/A	20	2	22

TABLE 1
Estimated Number of Samples for river water Monitoring Buffalo River AOC Final Design

Source	Matrix	Contaminants of Concern	Estimated No. of Locations	Estimated No. of Samples	Estimated No. of QC Samples[a]	Total Number of Samples for Analysis
Operations – TSS/Turbidity Correlation Sampling	Sample					
Dredging Operations: Weekly for 16 weeks Year 1[C]	Water: 24-hour composite field filtered	TSS, PCBs, PAH[b], lead, copper and mercury	4	64	7	71
Dredging Operations: Weekly for 30 weeks Year 2[C]	Water: 24-hour composite field filtered	TSS, PCBs, PAH[b], lead, copper and mercury	4	120	12	132
All Dredging Operations	Water: In-situ	Turbidity	4	Continuous		

[a] 10 percent QC Samples (5% for field blanks and 5% field duplicates).

[b] . PAH include Acenaphthene (D), Anthracene (D), Benzo(a)anthracene (D), Benzo(a)pyrene (D), Fluorene ;(D);Napthalene (D), Phenanthrene (D), and Pyrene (D) where (D) is dissolved phase.

[c] Frequency of sampling may be reduced to biweekly or monthly if results show limited impacts from dredging.

TABLE 2
Analysis Requirements for River Water Monitoring Buffalo River AOC Final Design

Analysis	Matrix	Method	Lab[a]	Notes
TSS	Water[b]	EPA 160.1	TBD	72-hour TAT
PCBs	Water[b]	EPA 608	TBD	Report to MDLs to meet acute guidance values for aquatic toxicity and protection[d]
PAHs[c]	Water[b]	EPA 8270	TBD	
Lead and Copper	Water[b]	EPA 200.7	TBD	
Mercury	Water[b]	EPA 245.1	TBD	

a. Laboratories must be accredited for the method and matrix under the New York State Environmental Laboratory Accreditation Program.
b. Water samples will be filtered to measure dissolved parameters.
c. PAH include Acenaphthene (D), Anthracene (D), Benzo(a)anthracene (D), Benzo(a)pyrene (D), Fluorene (D);Napthalene (D), Phenanthrene (D), and Pyrene (D) where (D) is dissolved phase.
d. Limits for Benzo(a)anthracene (D) will not be met.

TAT – Turnaround Time
TBD – To be determined
EPA – 40 CFR 136 Clean Water Methods

E. If chemical analyses indicate dredging operations might be causing significant increases in surface water concentrations above background values, Contractor may be required to perform mitigation measures as outlined in Article Water Quality Monitoring (Turbidity).

3.20 NOISE

A. Provide acoustical barriers so noise emanating from tools or equipment will not exceed legal noise levels.

END OF SECTION

SECTION 01 57 20
ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.01 SUMMARY OF GENERAL REQUIREMENTS

A. This section covers environmental protection measures to control pollution that develops during normal construction practice.

B. Adhere to the measures specified herein, and take additional measures, as may be required by federal, state, and local regulations to minimize any adverse impacts to the environment during the performance of the work. Any delays resulting from failure to comply with environmental laws and regulations will be the Contractor's responsibility.

C. Environmental protection activities shall be limited to the boundaries of the restoration areas and public rights-of-way as shown on the Drawings or as modified by the Owner's Representative in writing.

1.02 RELATED SECTIONS

A. Section 01 57 19, Environmental Controls.

B. Section 01 57 23, Storm Water Pollution Control.

C. Section 31 11 00, Clearing and Grubbing.

D. Section 31 23 23, Fill for Habitat Restoration.

1.03 PROTECTION OF WATER QUALITY

A. It is imperative that the Buffalo River does not become further contaminated with sediment or other contaminants that may result from the work. The Contractor shall not discharge wastewater, sediments, or contaminants into the Buffalo River. The remedial restoration work boundaries are also restricted to the stream banks and beds as indicated on the Drawings and the navigational channel shall not be modified as part of this work.

B. The Contractor shall be fully responsible for any and all damages to life, property, and animal life that occur as a result of his activities. Damages resulting from polluting the adjacent surface water bodies shall be repaired, restored, or compensated for by the Contractor.

C. Observe rules and regulations of the State of New York and other federal and local authorities that prohibit polluting of any stream, river or wetland by dumping of refuse, wastewater, rubbish, or debris.

D. Best Management practices (BMPs) as described in the Stormwater Pollution Prevention Plan required under Section 01 57 23, Storm Water Pollution Control shall be employed to prevent stormwater from contaminating surface water bodies.

1.04 PROTECTION OF LAND RESOURCES

A. Confine all activities to areas defined by the Drawings and Specifications. Identify any land resources to be preserved within the work area prior to the beginning of construction, including selected trees and shrubs. Do not remove, cut, deface, injure or destroy native land resources without approval, except in areas indicated on Drawings or specified to be cleared.

B. Mark the areas that need not be disturbed under this Contract prior to commencing construction activities. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

C. Implement the Erosion and Sediment Controls outlined in Section 01 57 23, Storm Water Pollution Control.

D. Contractor Facilities and Work Areas, including field offices, staging areas, stockpile storage and temporary buildings shall be installed in areas designated on Drawings or as coordinated with the Owner's Representative. Temporary movement or relocation of Contractor facilities will be made only when approved.

1.05 PROTECTION OF AIR QUALITY

A. Air Quality Objectives are:

1. Compliance with State and Federal Ambient Air Quality Standards for all parameters throughout the community surrounding the work areas as applicable.
2. All practical methods for suppression of fugitive dust are to be used as normal practice.

B. Minimize potential for air pollution by wetting down bare and disturbed soils from backfill areas or cleared or grubbed areas; properly operate combustion emission control devices on all construction vehicles and equipment; and do not allow motorized equipment to idle more than 5 minutes.

C. Refuse burning (including organic waste material) is prohibited.

1.06 CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

A. Characterization, storage, transport and disposal of all waste (both hazardous and non-hazardous) shall be in accordance with all applicable local, state, and federal regulations.

1.07 BIOLOGICAL RESOURCES

A. Minimize interference with, disturbance to, and damage to wildlife and plants including their habitat. The protection of threatened and endangered animal and plant species, including their habitat, is the Contractor's responsibility in accordance with federal, state, and local laws and regulations.

1.08 CONTAMINATED MEDIA MANAGEMENT

A. No contaminated soil or sediment shall be removed from the site during Habitat Restoration Remedial Activities, without the written consent of the Owner's Representative.

1.09 CONSTRUCTION EQUIPMENT

A. Equipment that is left onsite shall be maintained in such a manner as to prevent leaks and spills of oil, gasoline, lubricants, and other materials used for maintenance or refueling activities.

B. Cleanup and properly dispose of any materials spilled onto a work area or surrounding areas, as well as materials contaminated as a result of the spill. Cleanup and disposal shall be at the Contractor's expense.

1.10 POST CONSTRUCTION CLEANUP

A. Restore all areas used during construction upon completion of the habitat restoration activities. Unless otherwise instructed in writing by the Owner's Representative, remove all signs of temporary construction facilities such as work areas, temporary structures, foundations of temporary structures, stockpiles, waste materials, and other vestiges of construction prior to final acceptance of the work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 57 23
STORM WATER POLLUTION CONTROL

PART 1 GENERAL

1.01 DESCRIPTION

A. The work consists of implementing the storm water pollution prevention measures to prevent sediment from entering streams or water bodies as specified in this Section, and the requirements of the State Pollution Discharge Elimination System (SPDES).

1.02 RELATED SECTIONS

A. Section 31 25 00, Erosion and Sedimentation Controls.

B. Section 32 92 19, Seeding.

1.03 EROSION AND SEDIMENT CONTROLS

A. Stabilization Practices:

1. The stabilization practices to be implemented include geotextiles, erosion control mats, protection of trees, preservation of mature vegetation, etc. in accordance with the NYSDEC's *Standards and Specifications for Erosion and Sediment Control (August 2005)*. On the Daily Report, record the dates when the major grading activities occur, (e.g., clearing and grubbing, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in below in subparagraph Unsuitable Conditions, and subparagraph No Activity for Less Than 21 Days, initiate stabilization practices as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have temporarily or permanently ceased.
2. Unsuitable Conditions: Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases or is precluded by unsuitable conditions caused by the weather, initiate stabilization practices as soon as practicable after conditions become suitable.
3. No Activity for Less Than 21 Days: When the total time period in which construction activity is temporarily ceased on a portion of the site is 21 days minimum, stabilization practices do not have to be initiated on that portion of the site until 14 days have elapsed after construction activity temporarily ceased.

4. Burnoff: Burnoff of the ground cover is not permitted.
5. Protection of Erodible Soils: Immediately finish the earthwork to a final grade, as indicated or specified, and protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.

B. Erosion, Sediment and Storm Water Control:

1. Submit Erosion and Sediment Controls (E&S) and Storm Water Inspection Reports for General Permit to the Owner's Representative once every 7 calendar days and within 24 hours of a storm event that produces 0.5 inch or more of rain.
2. Submit a Storm Water Notice of Intent for SPDES coverage under the General Permit for Construction Activities (current version) and a Storm Water Pollution Prevention Plan (SWPPP) for the Project to the Owner's Representative prior to the commencement of work. The SWPPP shall meet the requirements of the State of New York general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intents, Notice of Termination, and appropriate permit fees, via the Owner's Representative, to the appropriate State agency for approval, a minimum of 14 calendar days prior to the start of any land disturbing activities. Maintain an approved copy of the SWPPP at the construction onsite office, and continually update as regulations require, to reflect current site conditions. Include within the SWPPP:
    a. Identify potential sources of pollution which may be reasonably expected to affect the quality of storm water discharge from the site.
    b. Describe and ensure implementation of practices which will be used to reduce the pollutants in storm water discharge from the site.
    c. Ensure compliance with terms of the State of New York general permit for storm water discharge.
    d. Install, inspect, and maintain best management practices (BMPs) as required by the general permit. Prepare and submit to the Owner's Representative, BMP Inspection Reports as required by the general permit.
    e. Once construction is complete and the site has been stabilized with a final, sustainable cover, submit the Notice of Termination to the appropriate state Agency within 30 days after all land disturbing activities end.

C. Stormwater Drainage: Discharge of hazardous substances or stormwater that has been in contact with hazardous materials will not be permitted under any circumstances. Construction site runoff will be prevented from entering any storm drain or the river directly by the use of straw bales, retention berms or other method approved by the Owner's Representative. Provide erosion protection of the surrounding soils.

D. Structural Practices: Implement structural practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Implement structural practices in a timely manner, during the construction process, to minimize erosion and sediment runoff. Include the following devices:

1. Silt Fences: Provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Properly install silt fences to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading).
2. Straw Bales: Provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. If bales are used, properly place the bales to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in an area between a ridge and drain, place the bales as work progresses, remove/replace/relocate the bales as needed for work to progress in the drainage area). Show on Drawings areas where straw bales are to be used. Provide rows of bales of straw as follows:
    a. Along the downhill perimeter edge of all areas disturbed
    b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.
    c. Along the toe of all cut slopes and fill slopes of the construction areas.
    d. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc. that traverse disturbed areas or carry runoff from disturbed areas. Space the rows such that they are no more than one foot of grade change from the next row
    e. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Space the rows such that they are no more than one foot of grade change from the next row.
    f. At the entrance to culverts that receive runoff from disturbed areas.

3. Diversion Dikes: Build diversion dikes with a maximum channel slope of 2 percent and adequately compacted to prevent failure. The minimum height measured from the top of the dike to the bottom of the channel shall be 18 inches. The minimum base width shall be 6 feet and the minimum top width shall be 2 feet. Ensure that the diversion dikes are not damaged by construction operations or traffic.

E. Vegetation and Mulch: Provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.

1.04 SUBMITTALS

A. Action Submittals: Storm Water Pollution Prevention Plan.

B. Informational Submittals:

1. Storm Water Notice of Intent.
2. Storm Water Inspection Reports for General Permit.
3. Product information for erosion and sediment controls.
4. Mill certificate or Affidavit.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Identify, store and handle filter fabric in accordance with ASTM D4873.

PART 2 PRODUCTS

2.01 COMPONENTS FOR SILT FENCES

A. Filter Fabric: Provide geotextile that complies with the requirements of ASTM D4439, and consists of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and contains stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultraviolet and heat exposure. Provide synthetic filter fabric that contains ultraviolet ray inhibitors and stabilizers to assure a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120 degrees F. The filter fabric shall meet the following requirements:

Filter Fabric For Silt Screen Fence		
Physical Property	**Test Procedure**	**Strength Requirement**
Grab Tensile Elongation (percent)	ASTM D4632	445 N100 lbs. min. 30 percent max.
Trapezoid Tear	ASTM D4533	245 N min.55 lbs. min.
Permittivity	ASTM D4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D4751	20-100

B. Silt Fence Stakes and Posts: Use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction shall have a minimum cross section of 2 by 2 inches when oak is used and 4 by 4 inches when pine is used, and have a minimum length of 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum weight of 1.33 pounds/linear foot and a minimum length of 5 feet.

C. Mill Certificate or Affidavit: Provide a mill certificate or affidavit attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. Specify in the mill certificate or affidavit the actual Minimum Average Roll Values and identify the fabric supplied by roll identification numbers. Submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

2.02 STRAW BALES

A. The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, Bermuda, etc., furnished in air dry condition. Provide bales with a standard cross section of 14 by 18 inches. Wire-bound or string-tie all bales. Use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimensions of 2 by 2 inches in cross section and have a minimum length of 3 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum weight of 1.33 pounds/linear foot and a minimum length of 3 feet.

2.03 EROSION CONTROL MATS

A. Rolled jute mesh to be used at the site for soil stabilization for all disturbed soil areas should be single net machine-produced mats that consist of 100 percent biodegradable jute. The mats shall be of consistent thickness, with jute evenly distributed over the entire area of the mat. The blanket shall have a mass per unit area of 0.50 lb/yd^2. The blanket shall be covered on the top side with a 100 percent biodegradable woven natural organic fiber net. The netting shall consist of machine direction strands formed from two intertwined biodegradable yarns with across directional strands interwoven

through the twisted machine strands (commonly refer to as a Leno weave) to form approximately a 0.50 x 0.5 inch mesh. The thread pattern on these mats shall not be more than 2 inches transverse stitch spacing. The mat should meet Class II, Type C of the NYSDOT Standards Specifications (latest edition).

PART 3 EXECUTION

3.01 INSTALLATION OF SILT FENCES

A. Extend silt fences a minimum of 16 inches above the ground surface without exceeding 34 inches above the ground surface. Provide filter fabric from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, splice together filter fabric at a support post, with a minimum 6-inch overlap, and securely sealed. Excavate trench approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The 4- by 4-inch trench shall be backfilled and the soil compacted over the filter fabric.

3.02 INSTALLATION OF STRAW BALES

A. Place the straw bales in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Install straw bales so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings. Entrench and backfill the barrier. Excavate a trench the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked and chinked (gaps filled by wedging with straw), backfill the excavated soil against the barrier. Conform the backfill soil with the ground level on the downhill side and build up to 4 inches against the uphill side of the barrier. Scatter loose straw over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Securely anchor each bale by at least two stakes driven through the bale. Drive the first stake or steel post in each bale toward the previously laid bale to force the bales together. Drive stakes or steel pickets a minimum 18 inches deep into the ground to securely anchor the bales.

3.03 SEEDING

A. See specifications for Seed Mix - Erosion Control as per Section 32 92 19, Seeding.

3.04 FIELD QUALITY CONTROL

A. Maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. Use the following procedures to maintain the protective measures.

B. Silt Fence Maintenance: Inspect the silt fences in accordance with Article Inspections, of this Section. Any required repairs shall be made promptly (within 24 hours). Pay close attention to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, replace the fabric promptly. Remove sediment deposits when deposits reach one-third of the height of the barrier. Remove a silt fence when it is no longer required. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall receive erosion control.

C. Straw Bale Maintenance: Inspect straw bale barriers in accordance with Article Inspections. Pay close attention to the repair of damaged bales, end runs and undercutting beneath bales. Accomplish necessary repairs to barriers or replacement of bales in a prompt (within 24 hours) manner. Remove sediment deposits when deposits reach one-half of the height of the barrier. At the each end of each row turn bales uphill when used to retain sediment. Remove a straw bale barrier when it is no longer required. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade.

D. Diversion Dike Maintenance: Inspect diversion dikes in accordance with Article Inspections, of this Section. Pay close attention to the repair of damaged diversion dikes and accomplish necessary repairs promptly (within 24 hours). When diversion dikes are no longer required, shape to an acceptable grade.

3.05 INSPECTIONS

A. General: Inspect disturbed areas of the construction site, areas that have not been finally stabilized used for storage of materials exposed to precipitation, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every 7 calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site.

Conduct inspections at least once every month where sites have been finally stabilized.

B. Inspections Details: Inspect disturbed areas and areas used for material storage that are exposed to precipitation for evidence of, or the potential for, pollutants entering the drainage system. Observe erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan to ensure that they are operating correctly. Inspect discharge locations or points to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Inspect locations where vehicles exit the site for evidence of offsite sediment tracking.

C. Inspection Reports: For each inspection conducted, prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. Furnish the report to the Owner’s Representative within 24 hours of the inspection as a part of the Contractor's Daily Report. A copy of the inspection report shall be maintained on the jobsite.

END OF SECTION

SECTION 01 71 00
EXAMINATION AND PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes general procedures governing the examination of habitat restoration sites to determine if conditions are acceptable for restoration feature installation and basic requirements for preparing to install restoration features and plantings.

B. Related Requirements:

1. Section 01 10 00, Summary of Work.
2. Section 02 21 00, Surveys, for surveying requirements.

1.02 INFORMATIONAL SUBMITTALS

A. Unsatisfactory Conditions Notifications: Submit as needed.

B. One-call system notification of utility markout.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities indicated on Drawings is based on available information. Before beginning site work, investigate and verify the existence and location of underground utilities and other subgrade structures that may affect the Work. Use the one-call system or other system(s) as applicable and provide a copy of the notification from the system that advises that the utilities have been field marked. This work should be coordinated with the current site conditions survey as specified in Section 02 21 00, Surveys.

1. Before construction, verify the location and conditions of outfalls, stream access areas (i.e., boat ramps), property boundaries, pilings to be kept in place, concrete and metal debris to be removed from site, and any utilities.
2. Arrange to have 3rd party specialist perform hard locate of utilities identified through one-call system or other system(s) as applicable or that appear on Drawings and are within dredging or habitat restoration footprints.

3. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions that may affect performance and record observations.

1. Notify Owner's Representative in writing of any unsatisfactory conditions.
2. Do not proceed until unsatisfactory conditions have been corrected.

C. Inspect all materials and equipment immediately upon delivery and again before installation. Reject damaged and defective items.

D. Written Report: Prepare a listing of conditions detrimental to performance of the Work, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

E. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly and stake locations of restoration features. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before installation. Coordinate measurements work with construction progress to avoid delaying the Work.

C. Identify and mark trees, shrubs, structures, and other site features, such as pilings, that have been selected to remain.

D. Identify and stake locations of soil erosion control measures that will be used onsite.

3.03 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property lines and existing benchmarks. If discrepancies are discovered, notify Owner's Representative promptly.

B. General: Coordinate layout work with initial topographic survey work as described in Section 02 21 00, Surveys.

1. Establish benchmarks and control points to set lines and levels at each layer of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated.
4. Notify Owner's Representative when deviations from required lines and levels exceed allowable tolerances.
5. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including in-water fill placement prior to beginning installation of restoration features and plants.

D. Record Log: Maintain a log of layout control work and record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Owner's Representative.

END OF SECTION

SECTION 01 72 20
DECONTAMINATION

PART 1 GENERAL

1.01 WORK INCLUDED

A. This Section covers the labor, materials, equipment necessary for decontaminating personnel, equipment and construction materials.

1.02 GENERAL

A. An onsite decontamination, stockpile, material processing pad and station large enough as part of the exclusion and decontamination reduction zones to accommodate all construction equipment to be used at the site shall be established by the Contractor in conformance with this Section and the Site Health, Safety, and Emergency Response Plan (HSERP). The Contractor will be responsible for providing the appropriate decontamination tools, equipment, solutions, liquids, containers, and supplies.

B. All personnel shall be decontaminated before leaving the site, as specified in the Site HSERP. “Leaving the site” is defined as leaving the exclusion zone and entering the contamination reduction area. Decontamination shall be required prior to breaks, when picking up tools, equipment, or materials in the support zone, or any other activities where the potential exists for contaminant transfer.

C. Equipment shall be cleaned and decontaminated prior to use onsite and prior to leaving the site. For the TSCA staging and processing area, decontamination shall be performed then wipe testing and analyses are to be performed to demonstrate that the TSCA cleanup requirements have been achieved per the Alternate Decontamination and Sampling Procedure in accordance with 40 CFR 761.79(h) developed and approved for the site.

D. All equipment shall be washed and cleaned prior to initiation of work at the site.

E. All decontamination operations shall be conducted by Contractor personnel wearing personal protective equipment as specified by in the HSERP.

F. Decontamination, wipe testing, and analytical testing shall be performed on all dredging equipment and barges used dredging of the designated TSCA area to demonstrate the TSCA cleanup requirements have been achieved.

1.03 RELATED SECTIONS

A. Section 01 11 01, Health, Safety, Environment and Emergency Response.

B. Section 01 33 00, Submittal Procedures.

C. Section 01 50 00, Temporary Facilities and Controls.

D. Section 01 57 19, Environmental Controls.

E. Section 02 81 00, Processing, Transport and Disposal of TSCA-Level Sediment.

F. Section 02 83 00, Contact Water Treatment System.

G. Section 35 20 23.13, Environmental Dredging.

PART 2 PRODUCTS

2.01 GENERAL

A. The Contractor shall furnish all equipment and supplies necessary for the decontamination process such as trisodium phosphate detergent, a mobile steam cleaner or hot water high pressure washer, buckets, brushes, etc, as specified in the HSERP or as required by applicable permits.

B. The Contractor shall furnish sealable United States Department of Transportation (U.S. DOT)-approved containers (55-gallon drums) having watertight lids as required. The Contractor shall also supply labeling materials.

C. Decontamination products for the TSCA work including porous concrete, asphalt, and metals:

1. CAPSUR – PCB Extraction System, Integrated Chemistries, White Bear Lake. MN.
2. Or equal.

PART 3 EXECUTION

3.01 EQUIPMENT DECONTAMINATION

A. For equipment used to handle Non-TSCA-level sediment, the Contractor shall decontaminate the equipment after use in the following manner:

1. Scrape and remove all earthen materials from the equipment.
2. Hose down equipment with a portable high-pressure steam cleaner.

3. Collect rinsate and scrapings. Place rinsate in approved tanks, as required by USEPA, until it can be tested, treated and discharged.
4. Scrapings shall be stored on-site and covered until it can be disposed of at an approved offsite disposal facility.
5. Dredging Contractor is responsible for management of all rinsate and scrapings, any testing, treating (as appropriate) and discharge or disposal at an approved offsite disposal facility.

B. Equipment used to handle TSCA-level sediment or hazardous classified material shall be decontaminated prior to handling non-TSCA-level and nonhazardous material. Decontamination of this equipment shall follow the Alternate Decontamination and Sampling Procedure in accordance with 40 CFR 761.79(h) developed and approved by the Contractor for the site. General equipment decontamination procedures shall include to:

1. Remove loose material by sweeping or washing;
2. Apply a solution of CAPSUR® and water mixed at manufacturer's recommendation ratio, with a dedicated high-pressure, low-volume pressure washer;
3. Rinse equipment using clean water from a high-pressure washer until the CAPSUR® solution had been removed, based on visual observation;
4. Collect wipe samples from a minimum of three surfaces that combined for a single analysis;
5. Repeat procedure until equipment passes wipe tests in all locations; and
6. Coordinate decontamination schedule with the Owner’s Representative to allow observation of procedures and sample collection.

3.02 TSCA-LEVEL DEBRIS DECONTAMINATION

A. Large Debris present in the TSCA-level material shall be removed from the sediment and decontaminated.

B. Debris present in TSCA-level material that cannot be decontaminated or for which decontamination and testing is more costly than disposal as TSCA-level material shall be accumulated into another waste stream for disposal at a TSCA-permitted landfill.

C. Testing of decontaminated TSCA-level Debris shall be performed as described below:

1. For hard impervious surfaces, such as steel or concrete, wipe testing methods shall be used and will follow the standard method as specified in 40 CFR 761.123, including using a predetermined area template and a gauze pad or glass wool that has been saturated with hexane to collect the sample.

2. A minimum of three surfaces shall be wipe tested and composited. The samples shall be labeled and sent under chain of custody documentation to an accredited New York State ELAP laboratory for analysis.
3. Following verification of decontamination to the regulatory disposal limits stated in the TSCA Monitoring Plan, debris shall be disposed of at the debris disposal area established for this Project at the CDF.

3.03 DECONTAMINATION OF TRUCKS TRANSPORTING TSCA-LEVEL SEDIMENTS AND DEBRIS

A. Once trucks with TSCA-level sediment are loaded, they will be moved to the decontamination area and the sediment covered with a tarp. The exterior of the trucks will be decontaminated with a pressure washer to remove sediment and soil.

B. A visual inspection will be performed to verify that no residual sediments and soils are on the vehicle prior to transport over the public highway. After completion of the decontamination process, the truck will depart the site and transport the sediment to a TSCA-permitted offsite landfill.

3.04 PERSONNEL DECONTAMINATION

A. Personnel decontamination procedures to be used shall be performed prior to leaving the exclusion zone. The Contractor shall provide all protective clothing and the equipment necessary for its own personnel to comply with the decontamination procedures as specified in this Section and in the HSERP.

3.05 DECONTAMINATION WATER

A. Water generated from TSCA decontamination activities shall be treated and discharged as specified in Section 02 83 00, Contact Water Treatment System.

B. Water generated from Non-TSCA decontamination activities can either be treated and discharged as specified in Section 02 83 00, Contact Water Treatment System, or can be temporarily stored in a tank, tested, and disposed offsite at an appropriate, licensed facility.

END OF SECTION

SECTION 01 74 00
CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT AND DISPOSAL

GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements: Section 02 41 19, Selective Site Demolition for disposition of waste resulting from partial demolition of stream-side structures and site improvements.

1.02 DEFINITIONS

A. Construction Waste: Waste materials resulting from restoration feature installation and habitat planting. Construction waste includes packaging.

B. Demolition Waste: Waste materials resulting from selective demolition of existing stream-side structures and existing site improvements.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse in another facility.

E. Salvage: As defined in Section 01 35 91, Protection of Historic Artifacts.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.03 PERFORMANCE REQUIREMENTS

A. General: Salvage/recycle non-hazardous solid waste generated by the Work as much as possible. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials**,** including the following:

1. Demolition Waste:
2. Concrete Debris.
3. Concrete reinforcing steel.
4. Metal Debris.
5. Trees and Shrubs.
6. Construction Waste:
    a. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
        1) Paper.
        2) Cardboard.
        3) Boxes.
        4) Plastic sheet and film.
        5) Polystyrene packaging.
        6) Wood crates.
        7) Plastic pails.
    b. Planting and Grubbing Debris: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the native species materials generated by clearing and grubbing by disposing of material at an off-site composting facility. Invasive species shall be separated for disposal at a landfill to control the spread of such species.

1.04 ACTION SUBMITTALS

A. Waste Management Plan: Submit a waste management plan according to ASTM E 1609 within 14 days of the Notice to Proceed. The plan shall include the following:

1. Name of Contractor personnel responsible for waste prevention and management.
2. Actions that will be taken to reduce waste generation.
3. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas and equipment to be used for processing, sorting and temporary storage of wastes.
4. Characterization, including estimated types and quantities, of the waste to be generated during restoration activities. Note that there are several areas that have large amounts of concrete debris at several of the sites that will require disposal by Contractor. No chemical sampling is required for disposal. If, disposal facility requires chemical sampling that is the responsibility of the Contractor to determine and include in the price for the work.
5. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.

6. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials (removed trees and shrubs) such as materials exchange networks.
7. List of specific waste materials that can be salvaged and reused, or recycled. Recycling facilities that will be used shall also be identified.
8. Identification of materials that cannot be recycled/reused with an explanation or justification.

1.05 INFORMATIONAL SUBMITTALS

A. Provide to the Owner’s Representative written notification of the quantity of solid waste/debris that is anticipated to be generated by construction. Include in the report the locations where various types of waste will be disposed or recycled. Include letters of acceptance or as applicable, submit one copy of a State and local Solid Waste Management Permit or license showing such agency's approval of the disposal plan before transporting wastes off property. The records shall be made available to the Owner’s Representative during construction and a copy of the records shall be submitted to the Owner’s Representative upon completion of the restoration construction.

B. Solid Waste Management Report:

1. Monthly, submit a solid waste disposal report to the Owner’s Representative. For each waste, the report will state the classification (using the definitions provided in this Section), amount, location, and name of the business receiving the solid waste.
2. Include copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, the Contractor may submit a statement indicating the disposal location for the solid waste which is signed by an officer of the Contractor firm authorized to legally obligate or bind the firm. The sales documentation or Contractor certification shall include the receiver's tax identification number and business, EPA or State registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained by the Contractor for his own use, the Contractor shall submit on the solid waste disposal report the information previously described in this paragraph. Prices paid or received need not be reported unless required by other provisions or specifications of this Contract or public law.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PLAN IMPLEMENTATION

A. General: Take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste, consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. Implement or take advantage of any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage or recycling shall accrue to the Contractor. Firms and facilities used for recycling, reuse, and disposal shall be appropriately permitted for the intended use to the extent required by federal, state and local regulations.

B. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

C. Comply with operation, termination, and removal requirements in Section 01 50 00 Temporary Facilities and Controls.

D. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

1. Distribute waste management plan to everyone concerned within three days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

E. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas at the staging areas necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

2. Comply with Section 01 50 00, Temporary Facilities and Controls for controlling dust and dirt, environmental protection, and noise control.

3.02 CONTROL AND MANAGEMENT OF SOLID WASTES

A. Pick up solid wastes, and place in covered containers which are regularly emptied. Do not prepare or cook food on the Project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At Project completion, leave the areas clean. Recycling is encouraged and can be coordinated with the Owner's Representative. Remove all solid waste (including nonhazardous debris) from the property and dispose offsite at an approved landfill. Solid waste disposal offsite must comply with most stringent local, State, and Federal requirements including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

B. Manage spent hazardous material used in construction including, but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, and used rags, as per environmental law.

C. Dumpsters: Equip dumpsters with a secure cover. Keep cover closed at all times, except when being loaded. Locate dumpsters behind the construction fence or out of the public view. Empty site dumpsters at least once a week or as needed to keep the site free of debris and trash.

3.03 COLLECTION

A. The necessary containers, bins and storage areas to facilitate effective waste management shall be clearly and appropriately labeled. Recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials and separated by the following method.

1. Source Separation Method: Waste products and materials that are recyclable shall be separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing.

3.04 SALVAGED WASTE

A. Salvaged Items for Reuse in the Work: As necessary, salvage items for reuse and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.

5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

3.05 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
   a. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.06 RECYCLING DEMOLITION WASTE

A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 4-inch (100-mm) size.

B. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

C. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

3.07 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials: Dispose off-site at a facility subject to the approval of the Owner.

3.08 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Final cleaning.

1.02 ACTION SUBMITTALS

A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

B. Certified List of Incomplete Items: Final submittal at Final Completion.

C. Submit Prior to Final Application for Payment:

1. Record Documents.
2. Special Bonds, Special Guarantees, and Service Agreements.
3. Consent of Surety to Final Payment.
4. Releases or Waivers of Liens and Claims.
5. Releases from Agreements.

1.03 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Final Application for Payment: Submit in accordance with procedures and requirements stated in Section 01 29 00, Payment Procedures.

1.04 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other sections, including final bathymetric surveys and similar final record information.
3. Submit sampling results summary of all final samples.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Terminate and remove temporary facilities from Project site, along with construction tools and similar elements.
2. Complete final cleaning and restoration requirements at the CDF and TSCA staging and processing areas.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection. On receipt of request, Owner’s Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner’s Representative will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner’s Representative that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.05 RECORD DOCUMENTS

A. Quality Assurance:

1. Furnish qualified and experienced person, whose duty and responsibility shall be to maintain Record Documents.

2. Accuracy of Records:
   a. Coordinate changes within Record Documents, making legible and accurate entries on each sheet of Drawings and other documents where such entry is required to show change.
   b. Purpose of Project Record Documents is to document factual information regarding aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive Site measurement, investigation, and examination.
3. Make entries within 24 hours after receipt of information that a change in the Work has occurred.
4. Prior to submitting each request for progress payment, request Owner's Representative's review and approval of current status of Record Documents. Failure to properly maintain, update, and submit Record Documents may result in a deferral by the Owner' Representative to recommend whole or part of Contractor's Application for Payment, either partial or final.

1.06 RELEASED FROM AGREEMENTS

A. Furnish the Owner's Representative written releases from property owners or public agencies where side agreements or special easements have been made, or where Contractor's operations have not been kept within the property owner's construction right-of-way.

B. In the event Contractor is unable to secure written releases:

1. Inform the Owner and Owner's Representative of the reasons.
2. The Owner or Owner's Representative will examine the Site, and the Owner will direct the Contractor to complete the Work that may be necessary to satisfy terms of the side agreement or special easement.
3. Should the Contractor refuse to perform this Work, the owner reserves the right to have it done by separate contract and deduct cost of same from Contract Price, or require Contractor to furnish a satisfactory bond in a sum to cover legal Claims for damages.
4. When the Owner is satisfied that the Work has been completed in agreement with Contract Documents and terms of side agreement or special easement, right is reserved to waive requirement for written release if: (i) Contractor's failure to obtain such statement is due to grantor's refusal to sign, and this refusal is not based upon legitimate Claims that the Contractor has failed to fulfill terms of side agreement or special easement, or (ii) The Contractor is unable to contact or has had undue hardship in contacting grantor.

1.07 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 01 29 00, Payment Procedures.
2. Certified List of Incomplete Items: Submit certified copy of Owner's Representative's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner's Representative. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Owner's Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner's Representative will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.08 LIST OF INCOMPLETE ITEMS

A. Organization of List: Include name and identification of each DMU and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of DMUs in sequential order.
2. Include the following information at the top of each page:
    a. Project name.
    b. Date.
    c. Name of Owner's Representative.
    d. Name of Contractor.
    e. Page number.
3. Submit list of incomplete items in the following format:
    a. MS Excel electronic file. Owner's Representative will return annotated file.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 MAINTENANCE OF RECORD DOCUMENTS

A. General:

1. Promptly following commencement of Contract Times, secure from the Owner's Representative at no cost to the Owner's Representative, one complete set of Contract Documents.
2. Delete Engineer's title block and seal from documents.
3. Label or stamp each record document with title, "RECORD DOCUMENTS," in neat large printed letters.
4. Record information concurrently with the construction progress and within 24 hours after receipt of information that change has occurred. Do not cover or conceal Work until required information is recorded.

B. Preservation:

1. Maintain documents in a clean, dry, legible condition and in good order. Do not use Record Documents for construction purposes.
2. Make documents and Samples available at all times for observation by the Owner's Representative.

C. Making Entries on Drawings:

1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe change by graphic line and note as required.
   a. Color Coding:
      1) Green when showing information deleted from Drawings.
      2) Red when showing information added to Drawings.
      3) Blue and circled in blue to show notes.
2. Date entries.
3. Call attention to entry by "cloud" drawn around area or areas affected.
4. Legibly mark to record actual changes made during construction, including, but not limited to:
   a. Horizontal and vertical locations of existing Underground Facilities and appurtenances, and other underground structures, equipment, or Work. Reference to at least two measurements to permanent surface improvements.
   b. Changes made by Addenda and Field Orders, Work Change Directive, Change Order, and Contractor's written interpretation and clarification using consistent symbols for each and showing appropriate document tracking number.

3.02 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations at all Project staging/storage/ processing areas.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   d. Remove tools, construction equipment, machinery, and surplus material from Project site.

END OF SECTION

SECTION 02 21 00
SURVEYS

PART 1 GENERAL

1.01 SUMMARY

A. Contractor shall perform surveys to the extent specified herein to set equipment, place features, determine required lines and grades, and to document completion of Work.

1.02 ACTION SUBMITTALS

A. Contractor shall submit for review the point grid that Contractor intends to use to complete bathymetric surveys for the Project.

1.03 INFORMATIONAL SUBMITTALS

A. Qualification Data for Bathymetric and Land Surveyors: Provide the names, addresses, credentials, years of experience and telephone numbers of the surveyors performing the Project survey work.

B. Initial Topographic Map: Submit with the Current Conditions Documentation for each Project area:

1. All habitat restoration areas.
2. Portion of CDF to be used for offloading, staging, and processing activities.
3. TSCA staging and processing area.

C. Final Topographic Map/Record Drawings: Submit for each Project Area after restoration work has been completed prior to Final Application for Payment.

1. All habitat restoration areas.
2. Portion of CDF to be used for offloading, staging, and processing activities.
3. TSCA staging and processing area.

D. Bathymetric Surveys: As described in Article “Bathymetric Surveys” within this section.

1.04 QUALITY ASSURANCE

A. Bathymetric and Land Surveyor Qualifications: Survey work shall be performed by or under the review of a New York State Licensed Land Surveyor (LLS).

1. Land Surveyor shall have a minimum of 5 years' experience in construction surveying and layout and maintenance of record construction drawings, with a record of performing horizontal and vertical control requirements as stated in this Section.
2. Bathymetric Surveyor shall have a minimum of 5 years' experience in hydrographic surveying.

B. Plan for, and ensure that, all personnel comply with the basic provisions of the Occupational Safety and Health Administration (OSHA) Standards (29 Code of Federal Regulations CFR 1910) and General Construction Standards (29 CFR 1926), including OSHA Hazardous Waste Operations and Emergency Response, Interim Final Rule (29 CFR 1910.120). All personnel must also comply with other applicable federal, state, or local laws and regulations.

1.05 BATHYMETRIC SURVEY OVERSIGHT

A. Owner's Representative may conduct oversight of Contractor's bathymetric surveying activities. Contractor shall conduct bathymetric surveying with vessels capable of accommodating one representative of the Owner's Representative's bathymetric surveying specialist.

PART 2 PRODUCTS

2.01 DIGITAL DATA FILES PROVIDED BY OWNER'S REPRESENTATIVE

A. Owner's Representative will furnish Contractor one set of digital data files of Drawings for use in preparing Record Drawings.

B. Owner's Representative makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

C. Digital Data Software Program: Drawings are available in AutoCAD 2012, and Civil 3D as appropriate.

D. Contractor shall execute a data licensing agreement in form of AIA Document C106 or similar form acceptable to the Owner's Representative.

2.02 RECORDS (FOR ALL SURVEYS)

A. Provide AutoCAD 2012, Civil 3D and LDD electronic files or xml files, as appropriate, for the project on CD and provide a data file of all the points surveyed using PNEZD format (point number, northing, easting, elevation and description).

B. For all surfaces installed, provide a list identifying the names of each surface with associated descriptions and names of point layers, point groups, breaklines, boundaries, and all other objects used to build each surface.

C. Submit a list of all layers added to the drawing with layer names and descriptions for each layer and other associated external references (xrefs) and/or third party files that support the Drawing:

1. The AutoCAD file shall be developed on a 1:1 basis, with actual distances equal to "AutoCAD" distances. The file shall be developed with the standard unit being decimal feet.
2. The AutoCAD file shall have a separate layer for a border and title block, which shall contain the Project name as well as the name of the surveying firm that performed the survey and prepared the drawing.
3. A "Notes" layer shall be included. The notes layer shall identify the dates of the survey, control points, and benchmarks used, and any other information that the Surveyor deems pertinent.
4. Each contour of a constant elevation shall be included as a separate polyline with the "z" coordinate set equal to that elevation. Major and minor contours shall be on separate layers.

D. The AutoCAD model space drawing shall be plotted in hardcopy on sheets size 22 inches by 34 inches, at an appropriate scale. Three copies shall be submitted and all copies shall bear the seal and signature of the professional Surveyor.

E. Also provide an Adobe Acrobat 9.0, or higher compatible electronic files of all surveys (provide data in electronic format - CD ROM).

F. Field Data: Provide an electronic scanned copy of the survey book upon completion of each phase of survey work. Include all field notes, notations, and descriptions used and compiled during the field survey.

G. Quantity Calculations: Provide all calculations required supporting the requests for Application Payments and verifications of volumes, areas, and lengths involved.

2.03 RECORD DRAWINGS

A. Mapping shall conform to the National Map Accuracy Specifications.

B. Record Drawings shall include labeled contour lines, property line locations, horizontal grid systems, cross-sections and details modified to show variations in conditions, details and cross-sections from original drawings, and any authorized field changes of elevations, dimensions, and details. Indicate locations of physical features on the site including: utilities, roadways,

culverts, manholes, utility poles, fences, gates, drainage ditches, monitoring wells, piezometers, leachate pipes, tanks, benchmarks, excavation limits, large trees, confirmation sampling points, and other significant items.

2.04 SURVEY NOTES

A. All data obtained during a survey shall be permanently recorded. A field notebook shall be maintained noting location, survey crew members, dates, times, weather, field sketches, and other pertinent data (e.g. computer calculations or coordinates used to verify survey accuracy, closure notes, etc.).

B. Data recorded electronically shall be preserved on a CD. A hard copy of all electronically obtained data shall be maintained. Hard Copy and CD shall be retained for a minimum of seven years.

PART 3 EXECUTION

3.01 COORDINATE SYSTEM AND DATUMS

A. Compute the coordinates of each surveyed point on the New York State Plane Coordinate System, West Zone using the 1983 North American Datum (NAD83), units in US Feet.

B. The vertical datum for topographic elevations shall be on the International Great Lakes Datum (IGLD) 85, Units in US Feet.

3.02 HORIZONTAL AND VERTICAL CONTROL

A. Horizontal and vertical control points shall be referenced to the permanent site control monuments to an accuracy of one part in ten thousand.

3.03 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Owner’s Representative. Report the need to relocate permanent benchmarks or control points to Owner’s Representative before proceeding.
2. Report and replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

B. Benchmarks: Establish and maintain a minimum of one permanent benchmark at each restoration Project site. The monument locations and elevations shall meet the Federal Geodetic Control Committee Standard for second order (horizontal and vertical). Final locations will be reviewed by the Owner's Representative for acceptability. Comply with authorities having jurisdiction for type and size of benchmark. Provide permanent benchmark at each location of work using closed traverse and leveling loops.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore site of temporary reference point to original condition.

3.04 BATHYMETRIC SURVEYS

A. Pre-dredge and Post-dredge Bathymetric Surveys. Dredging Contractor shall employ an ACSM Certified Hydrographer to take the following bathymetric surveys:

1. Survey around offloading area at CDF before work begins..
2. Survey around offloading area adjacent to TSCA staging area property before work begins. .
3. Pre-dredge surveys for each DMU.
4. Interim surveys for a DMU if DMU will not be completed in time for a post-dredge survey before submission of an invoice for progress payment, and contractor intends to include material dredged from that DMU in the invoice.
5. Post-dredge surveys for each DMU.
6. Additional post-dredge surveys for DMUs where additional dredging is required based on the results of the initial post-dredge survey.
7. For areas to receive in-water backfill as part of habitat restoration activities:
    a. Pre-backfilling survey.
    b. Survey in the fall immediately following placement of in-water backfill.
    c. Survey in the spring of the in-water backfill area, prior to planting of EV and SAV.
8. For the area at the south end of the Ship Canal designated for capping:
    a. Pre-capping survey.
    b. Survey following placement of the chemical isolation layer.
    c. Survey in the fall following placement of the in-water backfill.

d. Survey in the spring of the in-water backfill area, prior to planting of EV and SAV.

9. For the area adjacent to the ADM/Pillsbury property designated to receive an armored cap:
   a. Pre-capping survey.
   b. Survey following placement of filter layer 2.
   c. Survey following placement of filter layer 1.
   d. Survey following placement of armored layer. This survey shall be multibeam for accuracy for future use during long term monitoring.
10. Survey around offloading area at CDF after work is completed.
11. Survey around offloading area adjacent to TSCA staging area property after work is completed.

B. Extend bathymetric surveys a minimum of 50 feet outside the extents of the area to be surveyed.

C. The USACE hydrographic surveying requirements referenced in EM 1110 2 1003 Engineering and Design-Hydrographic Surveying shall be mandatory unless otherwise specified. Bathymetric surveys in support of pay requests shall be performed with multi-beam survey equipment and others shall be performed with single beam survey equipment on lines spaced a maximum of 25 feet apart. The survey software must be capable of collecting XYZ data in real time. The surveys shall cover 100 percent of the targeted area. Horizontal positioning shall be by differential global positioning systems (DGPS), or an equivalent technology capable of achieving DGPS accuracy, and shall be referenced to the horizontal datum described in Article Coordinate System and Datums.

D. Horizontal (x, y) accuracy shall be 3 feet (or better) and the vertical (z) accuracy shall be +1, -3 inches (or better).

E. Provide to the Owner’s Representative, for review, specifications and quality assurance/quality control criteria as to how Contractor’s surveyor will collect bathymetric data and grid spacing.

F. Pre-dredge and pre-capping bathymetric surveys shall be conducted within 7 days prior to starting dredging or capping work in a DMU. If a significant precipitation event or propeller wash from a passing vessel has occurred before dredging or capping begins in the DMU, conduct another pre-dredge or pre-capping bathymetric survey.

G. Contractor shall perform post-dredge bathymetric surveys within 7 days of completing work in a DMU.

H. Contractor shall perform post-capping layer placement bathymetric surveys within 7 days of completing the cap layer and, if an additional capping layer is to be placed, shall start the placement of the successive cap layer within 7 days of completion of the bathymetric survey.

I. Horizontal datum used for dredging work in the river should be in New York State Plane Coordinates North American Datum 1983, Central Zone (US Feet). Vertical datum used for the dredging work in the river should be in International Great Lakes Datum 1985 (Feet).

J. Contractor shall present the results of bathymetric surveys to the Owner's Representative. Plots of post-dredge surveys, raw survey data and related quantities are required to be submitted within 3 days of completion of the surveys. For bathymetric surveys that are required to document progress of Work, Owner's Representative will evaluate the results and within 7 working days either:

1. Approve the Work represented by the survey or;
2. Document in writing why the Work is deficient.

3.05 HABITAT RESTORATION SURVEYS

A. Conduct a post-backfill placement bathymetric survey within 7 days following placement of in-water backfill to verify backfill elevations indicated on Drawings have been achieved.

B. Placement Bathymetric Survey for Habitat Restoration: Conduct a bathymetric survey the spring following placement of in-water backfill. This survey shall be conducted to verify that contours associated with planting areas are still consistent with Drawings and within the specified tolerances after the winter. Prior to planting SAV and EV, Contractor shall present the results of the survey to the Owner's Representative. Owner's Representative will evaluate the results and then prescribe in writing within 7 working days remedies needed to be performed prior to planting. Contractor shall not proceed with planting efforts until any potential remedies have been implemented and verified by the Owner's Representative.

1. Spot elevations and locations shall be established and surveyed as necessary to ensure that work is installed to the grades shown on Drawings, including spot elevations of any drainage structures.
2. Survey the location and elevation of all excavation and fill limits to document the areas remediated.

C. Final Topographic Map/Record Drawings:

1. Provide upon completion of the final backfill of materials, removal of debris, installation of restoration features and restoration of all disturbed surfaces.
2. Submit quantity estimates and back-up survey data for review by Owner's Representative prior to payment for this item. Preliminary estimates are presented in the Contract Documents.
3. Show final location and elevation of all construction areas including backfill, riprap, and vegetation by planting types.
4. Show final position of anchored woody debris, root wads, modified LUNKERS boxes, stones and vegetative restoration elevations as installed on the stream bank within each restoration area.
5. Show final contours of the backfill areas.
6. Show location of all confirmation or documentation sample points as needed.
7. Show the final grading, amount of riprap, and amount of backfill and topsoil materials placed along river banks at each restoration site.
8. Show the final grading of the soil staging area.
9. This final survey/record drawing shall be certified by the licensed land surveyor.

3.06 PREDREDGE AND POST-DREDGE SURVEY OVERSIGHT

A. Owner's Representative will provide oversight of Contractor's bathymetric surveying subcontractor. Alternatively, Owner may contract with another bathymetric surveying specialist to perform the oversight.

B. Contractor shall conduct bathymetric surveying with vessels capable of accommodating the Owner's bathymetric surveying representative.

C. Contractor shall work with Owner's bathymetric surveying representative as necessary to ensure surveys are approved in a timely manner.

3.07 PAYMENT QUANTITIES DEPENDENT UPON SURVEYS

A. Quantities shall be calculated using industry standard techniques such as the average end-area method or digital terrain modeling.

B. Dredging: Dredged quantities will be determined on the basis of cubic yard in place, by means of pre-dredge and post-dredge bathymetry taken in each DMU. Drawings represent existing conditions based on current available information, but will not be used for pre-dredge bathymetry.

C. Armored cap layer: Pre-capping and post-capping layer placement bathymetric surveys will be used in conjunction with weight tickets showing quantity of armored cap material placed to document the thickness of the armored cap layer meets specifications.

D. Lateral extent of cap layers placed: Pre-capping and post-capping layer placement bathymetric surveys will document the lateral extent of cap placement, which will be the basis for payment (square feet).

E. Habitat Restoration: Placement of backfill for in-water habitat restoration will be documented by pre-backfilling and post-backfilling bathymetric surveys.

END OF SECTION

SECTION 02 24 23
CHEMICAL SAMPLING AND ANALYSIS OF SOILS AND SEDIMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Soil and sediment sampling requirements for TSCA-level sediment characterization sampling, pre-construction and post-construction TSCA staging area sampling, TSCA-level sediment post-dredging confirmation sampling, and sampling of borrow sources.

1.02 SUBMITTALS

A. Action Submittals: The Contractor shall identify all proposed project laboratories to perform analyses described in the TSCA Monitoring Plan in Appendix H to the Basis of Design reports.

B. Informational Submittals: Analytical Results: as specified in the TSCA Monitoring Plan.

1.03 QUALITY CONTROL

A. Sampling frequency, locations, and analyses stated below are a based on the TSCA regulatory requirements, however, the Contractor is responsible for meeting the TSCA regulatory requirements for testing and evaluation.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 ANALYTICAL TESTING LABORATORIES

A. The Contractor shall utilize subcontract laboratories to achieve required sample analyses. The Contractor shall propose the analytical laboratories to be used.

B. Analytical methods used by the laboratories shall be in accordance with those described in the TSCA Monitoring Plan.

C. All laboratories must be certified by New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP). Analytical methods shall be implemented in accordance with most current version of the New York State Department of Environmental Conservation Analytical Services Protocol (NYSDEC-ASP) unless specifically stated otherwise.

D. Analytical data shall be reported in dry weight for soils and µg/m^3 for air and vapor samples in data reports. Results shall be reported to the correct number of significant figures. Calculations shall be performed on unrounded, raw results and not on the final instrument values.

E. Data packages shall meet the specifications of NYSDEC Analytical Services Protocol Category B. The laboratory also shall provide a summary data package that includes a copy of the chain-of-custody, case narrative and Form I results. Electronic data shall be provided in accordance with the most recent version of New York State Department of Environmental Conservation standardized electronic data deliverable (EDD) format.

3.02 DOCUMENTATION

A. Documentation records shall be provided as factual evidence that required chemical data has been produced and chemical data quality has been achieved.

3.03 TSCA-LEVEL SEDIMENT CHARACTERIZATION

A. Upon award of the Contract, the Contractor will provide the Owner and Owner's Representative the name of the proposed disposal facility to receive the TSCA-level sediment.

B. Contractor shall implement an analytical testing program to characterize the TSCA-level material for disposal purposes. Samples will be collected from the TSCA-level material in situ with a vibracore and portioned to be representative of the expected thickness of the TSCA-level contaminated sediment. The number of samples will meet the profiling requirements of the proposed disposal facility and will be consistent with New York guidance such as NYSDEC Division of Water Technical & Operational Guidance Series 5.1.9 In-Water and Riparian Management of Sediment and Dredged Material and requirements.

C. The samples will be analyzed for total PCBs and the full toxicity characteristic leaching procedure (TCLP) parameter list. The specific test requirements will be confirmed based upon the requirements of the receiving disposal facility proposed by the Contractor.

D. The Contractor shall use the analytical results to prepare waste profiles for the disposal facility. Contractor shall allow two months from date of Contract Award for analytical results to be available.

3.04 PRE-CONSTRUCTION TSCA STAGING AREA SAMPLING

A. Collect pre-construction or background samples from the selected material processing/staging area property to document pre-construction conditions for

comparison to post-construction samples collected after remedial activities have been completed.

B. Randomly select initial baseline sample locations at a frequency of one sample per 1,500 square feet (ft^2) or where critical processing areas may be located based on Contractor's operations plans.

C. Mark and survey locations using Global Positioning System (GPS) units for location replication during post-construction sampling.

D. Inform Owner's Representative at least 24 hours prior to sampling; Owner's Representative will observe sample collection.

E. Collect samples from the ground surface to a depth of 2 inches using a small shovel or other equipment that can be decontaminated between locations.

F. Label and ship samples under chain of custody documentation to an accredited New York State approved ELAP lab for analysis.

G. Testing methods: For pervious surfaces (e.g., soils, concrete, and asphalt), chip samples and standard analytical methods shall be used. For hard impervious surfaces, such as steel or construction equipment, wipe testing methods will be used and will follow methods specified in 40 Code of Federal Regulations (CFR) 761.123.

H. Analytes:

1. Total polychlorinated biphenyl (PCB) Aroclors.
2. Total polycyclic aromatic hydrocarbons (PAHs).
3. Lead.
4. Mercury.
5. Possibly other chemical parameters based on other known contaminants of concern at the site selected for TSCA processing/staging.

3.05 POST-CONSTRUCTION TSCA STAGING AREA SAMPLING

A. Conduct sampling of the TSCA staging and processing site based on the pre-construction sampling locations after removing surface layers that are likely contaminated and disposing offsite. Sampling locations, quantity, methodology, and analyses shall be the same as for the pre-construction sampling.

B. Based on results of sampling, remove and properly dispose all materials and soil from these areas that contain contaminants in concentrations above the pre-construction sample results.

3.06 TSCA-LEVEL SEDIMENT POST-DREDGING CONFIRMATION SAMPLING

A. After completion of the dredging has been verified by bathymetric survey, conduct confirmation sampling over the footprint of the TSCA-level sediment area (DMU 8b) to document the residual PCB contamination and sediment thickness remaining.

B. Collect confirmation samples from seven locations as described below, and as shown on Drawing TS – 2 in the TSCA Monitoring Plan in Appendix H to the Basis of Design reports. In order to determine these seven confirmation sampling locations, sub-DMUs were established based upon of the level of contamination at previous sampling points and the average distance to the next clean sample. These sub-DMUs are shown on Drawing TS – 2.

1. Sub-DMU 8b-1 (navigation channel): Collect one confirmation sample core using the previous sampling location (11-748+45C). The sample core shall extend 2 feet beyond the final dredge limit and shall be subdivided into 6-inch intervals. Analyze all intervals for total PCBs. If any interval exceeds the criteria in the TSCA Monitoring Plan, the results will be used by the Owner's Representative to re-establish a new dredging depth for the sub-DMU area.
2. Sub-DMUs 8b-2 (navigation channel): 8b-3 (right descending bank), and 8b-6 (right descending bank). Collect one confirmation sample core in each of these sub-DMUs using the previous sampling locations. The sample cores shall extend 2 feet beyond the final dredge limit and shall be subdivided into 6-inch intervals. Analyze all intervals for total PCBs. If any interval exceeds the criteria in the TSCA Monitoring Plan, the results will be used by the Owner's Representative to re-establish a new dredging depth for the sub-DMU area.
3. Sub-DMU 8b-4 (right descending bank): Collect two confirmation sample cores in this sub-DMU since it is the largest of the sub-DMUs. The sample cores shall extend 2 feet beyond the final dredge limit and shall be subdivided into 6-inch intervals. Analyze all intervals for total PCBs. If any interval exceeds the criteria in the TSCA Monitoring Plan, the results will be used by the Owner's Representative to re-establish a new dredging depth for the sub-DMU area.
4. Sub-DMU 8b-5 (navigation channel): Collect one confirmation sample core in this sub-DMU. The sample core shall extend 2 feet beyond the final dredge limit and shall be subdivided into 6-inch intervals. Analyze all intervals for total PCBs. If any interval exceeds the criteria in the TSCA Monitoring Plan, the results will be used by the Owner's Representative to re-establish a new dredging depth for the sub-DMU area.

C. Use clear core liners for sediment coring to allow for visual observation and measurement of sediment thickness if visibly apparent. The depth of soft sediment above the till shall be measured and recorded from each core location to verify that most of the sediment has been removed. Employ a geologist to identify the till layer and other visible layering features and to visually characterize the sediment deposits.

3.07 BORROW SOURCE SAMPLING

A. Collect samples of proposed borrow material at the source. Collect one composite sample for each proposed material.

B. Label and ship representative samples under chain of custody documentation to an accredited New York State approved ELAP lab for analysis.

C. Samples shall be analyzed for target compound list (TCL) organics and target analyte list (TAL) metals. The topsoil shall meet the New York State [DEC DER 10] Subdivision 5.4(e) Appendix 5 for Ecological Resources Present for imported fill or soils for the project.

END OF SECTION

SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Demolition and removal of selected site elements including general debris along Buffalo River banks, metal debris in the Ship Canal, and selected vegetation as identified in Section 31 11 00, Clearing and Grubbing.

1.02 RELATED SECTIONS

A. Section 01 50 00, Temporary Facilities and Controls.

B. Section 02 21 00, Surveys.

C. Section 31 11 00, Clearing and Grubbing.

D. Section 32 91 00, Planting Preparation.

1.03 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and dispose of by reusing or recycling material.

C. Existing to Remain: Existing items of construction that are not to be permanently removed and are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.04 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.05 PRE-DEMOLITION MEETING

A. Pre-demolition Meeting: Conduct at Project site.

1. Inspect and discuss condition of site materials to be selectively demolished.
2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
4. Review areas where existing stream structures are to remain and require protection.

1.06 INFORMATIONAL SUBMITTALS

A. Schedule of Selective Demolition: Activities that detail the sequence of selective demolition and removal work, with starting and ending dates for each activity.

B. Pre-demolition Inventory List: Submit a list of items to be removed and salvaged/recycled prior to the start of demolition.

C. Disposal Facilities: Provide information on the landfill or disposal facilities where demolished waste (and any hazardous waste) will be disposed.

D. Post-demolition Inventory List: Submit a list of items and quantities that have been removed and salvaged after demolition.

E. Landfill Records: Indicate receipt and acceptance of non-hazardous and hazardous wastes by landfill facilities licensed to accept said materials.

1.07 FIELD CONDITIONS

A. Notify Owner's Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

B. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work in this Section.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Owner's Representative.

C. Storage or sale of removed items or materials on-site is not permitted. All material removed should be disposed of/recycled in an appropriate manner in accordance with all applicable Federal, State and Local regulations.

D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

E. Provide regulatory agency notifications as may be required by the various project permits.

1.08 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

PART2 PRODUCTS (NOT USED)

PART3 EXECUTION

3.01 EXAMINATION

A. Verify locations of subgrade utilities prior to demolition and selected site clearing.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required. Prior to any demolition, the Owner's Representative and Contractor shall verify the structures or items to be demolished have been tagged/marked appropriately.

C. When unanticipated utility or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Owner's Representative.

D. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs or video record as needed. Inventory and record the condition of items that can be removed and salvaged. Provide photographs or video record of conditions that might be misconstrued as damage caused by salvage operations. Coordinate with Section 01 57 19, Environmental Controls.

3.02 PREPAR**A**TION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with access roads, navigational channel of Buffalo River and adjacent occupied properties.

B. Temporary Protection: Provide temporary protection as needed to prevent injury to people and damage to adjacent vegetation and facilities to remain, as necessary.

3.03 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing site features only to the extent as indicated on Drawings or in the specifications or as specified by Owner's Representative in the field. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches or other high heat devices to cut potentially contaminated structures.
2. Concrete structures can be demolished in sections or removed as single pieces if feasible. Temporary soil erosion and sediment control measures shall be implemented in the area of demolition during these activities to prevent migration of sediments to adjacent water bodies.
3. Dispose of demolished items and materials promptly. Comply with requirements in Section 01 57 19, Environmental Controls.

B. Existing Items to Remain: Protect adjacent structures, vegetation, and individual trees indicated to remain against damage and soiling during selective demolition.

3.04 CLEANING

A. As needed to repair soiling from construction activities, clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began or better.

3.05 SELECTIVE DEMOLITION SCHEDULE

A. Existing Items to Be Removed: Existing Concrete debris in that exceeds 3 inches during preparation of planting pits (see Section 32 91 00, Planting Preparation) and existing metal debris in the Ship Canal.

B. Existing Items to Remain: Existing Sheet Pile Wall, Upright or leaning timber Pilings, Existing Boat Ramps and Existing Outfalls as indicated on Drawings.

END OF SECTION

SECTION 02 56 14
CAPPING

PART 1 GENERAL

1.01 DESCRIPTION

A. Section includes materials, handling, placement, and confirmation of layers for armored caps and the City Ship Canal Cap.

1.02 SUBMITTALS

A. Action:

1. Armored Cap Layers Placement Plan.
2. City Ship Canal cap layer placement plan.
3. Results of gradation analyses for supplied materials.
4. Results of chemical analyses for supplied materials.

B. Informational: Post placement testing results.

1.03 RELATED SECTIONS

A. Section 01 57 19, Environmental Controls.

B. Section 01 57 20, Environmental Protection.

C. Section 01 57 23, Storm Water Pollution Control.

D. Section 01 72 20, Decontamination.

E. Section 02 21 00, Surveys.

F. Section 02 24 23, Chemical Sampling and Analysis of Soils and Sediments.

G. Section 31 25 00 Fill for Habitat Restoration.

1.04 QUALITY CONTROL

A. Prepare Armored Cap Layers Placement Plan to include:

1. Materials source.
2. Materials gradation.
3. Materials hauling route.
4. Materials stockpile area.
5. Materials placement equipment and procedure.

6. Procedures to control resuspension and turbidity during placement.

B. Prepare City Ship Canal cap layers placement plan to include:

1. Materials source.
2. Materials gradation.
3. Materials hauling route.
4. Materials stockpile area.
5. Materials placement equipment and procedure.
6. Procedures to control resuspension and turbidity during placement.

1.05 ENVIRONMENTAL PROTECTION REQUIREMENTS

A. As stated in Section 01 57 19, Environmental Controls, Section 01 57 20, Environmental Protection and Section 01 57 23, Storm Water Pollution Control.

B. Contractor shall place cap materials in such a manner to minimize re-suspension of sediment in the water column or have such controls in place that if sediment is re-suspended it is captured and kept within the cap footprint. Turbidity monitoring shall be conducted downstream of the area being capped.

PART 2 PRODUCTS

2.01 GRADATION OF MATERIALS FOR ARMORED CAP

A. Filter Layer 1 Material: The Filter Layer 1 material shall meet the material requirements of NYSDOT Standard Specifications 703.02 the following specific gradation requirements:

U.S. Sieve	2"	1 1/2"	1”	3/4"	3/8"
Metric Sieve	50.8mm	38.1mm	25.4mm	19.1mm	9.5mm
Specification (Percent Passing by Weight)	100	85	50	15	0-15

B. Filter Layer 2 Material: The Filter Layer 2 material shall meet the following specific gradation requirements:

U.S. Sieve	#4	#6	#8	#16
Metric Sieve	4.75mm	3.36 mm	2.36mm	1.18mm
Specification (Percent Passing by Weight)	100	50-85	15	0-15

C. Armor Layer: Armor Layer shall be New York State Department of Transportation (NYSDOT) approved light Riprap. Each sample shall meet gradation requirements specified for the corresponding riprap type, include at least one piece of maximum size, and be representative of material to be furnished for incorporation into work. Weigh individual pieces of riprap with scales that are certified accurate to within plus or minus one percent of actual weight. No slag shall be allowed. Use of waste concrete slabs or any calciferous stones should be avoided because they can degrade over time when exposed to water.

2.02 MATERIALS FOR CITY SHIP CANAL CAP

A. Reactive Cap material: The cap material shall be AquaGate+PAC 5 percent and shall have at least 5 percent activated carbon material by weight.

2.03 SOURCE QUALITY ASSURANCE

A. Contractor shall provide the results of one representative gradation test (ASTM D422 [for soils and gravel] or ASTM D5519 [for Riprap]) of proposed imported materials prior to the delivery of materials to the site. Additional gradation tests shall be provided at a frequency of one test per 10,000 cubic yards delivered to the site.

B. Contractor shall perform chemical analyses of proposed imported filter layer 1 and filter layer 2 materials in accordance with Section 02 24 23, Chemical Sampling and Analysis of Soils and Sediments. This is not necessary for armor cap materials or the reactive cap materials.

C. The results of the required chemical analyses and associated QA data must be provided to Owner’s Representative at least 1 week prior to use of the material.

D. No capping material may be placed without approval of the material by Owner’s Representative.

2.04 COMMUNICATION

A. Contractor shall provide a system of continuous communication between the placement crew and the personnel performing monitoring.

B. Radio telephone equipment shall be capable of transmitting and receiving on VHF Channels.

C. Contractor shall provide Owner’s Representative with three (3) hand-held VHF radios capable of communicating with the Contractor's marine plant for the duration of the work. Should a unit provided to the Owner’s

Representative cease to function, Contractor shall repair or replace it within 72 hours.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect the work, keep records of work performed, and ensure that gauges, targets, ranges, and other markers are in place and usable for the intended purpose. Furnish, at the request of the Owner's Representative, boats, boatmen, laborers, and materials necessary for inspecting, supervising, and surveying the work. When required, provide transportation for the Owner's Representative and Owner and inspectors to and from the material staging area and between the placement equipment and adjacent points on shore.

3.02 EXAMINATION AND PROTECTION

A. Contractor shall locate and protect overhead and underground utilities, and other facilities or structures that lie in or adjacent to Work areas. Known utility information is shown on the Drawings.

B. Armored Cap placement occurs adjacent to Critical Structures and therefore Contractor shall avoid disturbing or creating the potential to damage the existing structure.

C. Contractor shall maintain a minimum offset of five feet from the Critical Structure with all placement equipment to limit the potential to impact them with the equipment.

D. Contractor shall not place any capping materials outside the footprint of the cap and shall specifically avoid placing of any capping materials within the Federal Navigation Channel.

3.03 DECONTAMINATION OF EQUIPMENT

A. Any equipment that comes in contact with the existing sediment during the capping operations shall be subject to the requirements of Section 01 72 20, Decontamination.

3.04 INTERFERENCE BETWEEN NAVIGATION AND WORK PROGRESS

A. Minimize interference with the use of channels and passages. Contractor shall be responsible for working with shipping interests in the Buffalo River and Ship Canal and arranging the schedule of Work to minimize interference both with third party vessel movements and the progress of the Work.

B. Contractor shall be responsible for coordinating the schedule of Work with operators of marinas to minimize disruption to both the marina operations and the progress of Work.

C. No additional compensation, including payment of standby time, shall be due to the Contractor for impedance of Work from vessel traffic or marinas operating in the Buffalo River or Ship Canal, including loading and unloading operations.

3.05 NAVIGATION WARNINGS:

A. Furnish and maintain navigation warning signs as required near capping operations and material loading operations. Contractor shall coordinate with the U. S. Coast Guard's Navigation Center.

3.06 MATERIAL PLACEMENT TOLERANCES AND VERIFICATION

A. Filter Layers 1 and 2:

1. Prior to placement of any cap materials, conduct a pre-capping bathymetric survey as specified in Section 02 21 00, Surveys over the entire area to receive the armored cap.
2. Dust control shall be implemented during the placement of filter layers to reduce the particulate emissions for above water operations.
3. Turbidity control shall be implemented during the placement of filter layers to reduce loss of layer materials downstream and to control resuspension of sediment materials being capped.
4. Place Filter Layers 1 and 2 to thicknesses no less than the thicknesses shown on the Drawings as determined by the weighted bucket measurement technique described below. For filter layer 1, the fall height shall not exceed one foot above the previously installed filter layer during placement.
5. Following placement of each filter layer, conduct a post-cap layer placement bathymetric survey as specified in Section 02 21 00, Surveys.
6. After the filter layer placement in an area, the material shall be measured for payment by the weighted bucket measurement technique. This measurement technique shall consist of placing 5-gallon or similar buckets on the bottom of the area to receive filter layer material (buckets will be weighted so they sink through the water column). After placement of the material, the bucket shall be retrieved using a rope or cable to verify the thickness of material placed. A minimum of two bucket checks per 1,000 square feet is required. If a bucket is retrieved and fails to meet the minimum thickness requirement, it shall be emptied and lowered back down. The entire area assigned to that bucket (500 square feet) is assumed to be deficient by the shortage, so that cap

layer thickness must be added to the area as determined by retrieval of the same bucket following additional material placement.

7. There will be no maximum thickness tolerance level constraints as the Contractor shall be reimbursed on a lateral area basis as long as the minimum thickness is met.
8. Place filter layers in such a manner to minimize re-suspension of sediments and to minimize turbidity.
9. Oversight shall be provided by Owner's Representative during the material placement.

B. Armored Cap:

1. Place armored cap material from the base of the slope upward. In no case shall the fall height exceed one foot above the previously installed filter layer during placement.
2. No mechanical compaction of armored cap material is required.
3. Conduct a post-capping layer placement bathymetric survey following armor cap material placement.
4. Verification of thickness of armored cap material layer will be done by weight tickets and density estimates. The placement bathymetric survey will be used as a general guide to identify areas where the cap might be thin, but errors associated with collection of bathymetry data preclude its sole use as the determination of cap thickness. An alternative verification method can be proposed by the Contractor, subject to approval by Owner's Representative. Contractor shall remove at own cost any misplaced material.
5. Oversight shall be provided by Owner's Representative during the placement of armored cap materials.

C. City Ship Canal Cap:

1. Prior to placement of any cap material, conduct a pre-capping layer placement bathymetric survey as specified in Section 02 21 00, Surveys over the entire area to receive the cap.
2. Dust control shall be implemented during the placement of cap and in-water backfill materials to reduce the particulate emissions for above water operations.
3. Turbidity control shall be implemented during the placement of cap and in-water backfill materials to reduce loss of material downstream and to control resuspension of sediment materials being capped.
4. Place the reactive cap material to thicknesses no less than the thicknesses shown on the Drawings. Use the weighted bucket measurement technique (as described for placement of filter layer material) to verify thickness of the reactive cap material. A minimum of two bucket checks per 1,000 square feet is required.

5. Place the in-water backfill material to elevations shown on the Drawings. See Section 31 23 23, Fill for Habitat Restoration for fill material properties.
6. No mechanical compaction of the cap material is required.
7. Verification of final grade of in-water backfill layer will be done by bathymetric survey. Conduct additional bathymetric surveys related to City Ship Canal capping as indicated in Section 02 21 00, Surveys. Note that a post-capping layer placement survey shall be completed within 7 days following placement of the in-water backfill to verify design elevations have been achieved, and a bathymetric survey shall be performed in the spring prior to planting of EV and SAV.
8. Contractor shall remove at own cost if any material is placed within the navigational channel.
9. Oversight shall be provided by Owner's Representative during the placement of cap materials.

D. Contractor can suggest alternative material placement verification techniques to those specified. An alternative shall be used in lieu of the specified technique only if Owner approves the alternative technique in writing.

3.07 WATER QUALITY MONITORING

A. Perform water quality monitoring as specified in Section 01 57 19, Environmental Controls.

3.08 PLATFORM REMOVAL

A. Upon completion of the work, promptly remove platform, including ranges, buoys, piles, and other markers or obstructions.

END OF SECTION

SECTION 02 81 00
PROCESSING, TRANSPORT AND DISPOSAL OF TSCA-LEVEL SEDIMENT

PART 1 GENERAL

1.01 DESCRIPTION

A. This Section specifies the requirements for the processing, transport, and disposal of dredged TSCA-level materials and Debris.

B. For disposal purposes, two different categories of sediments and debris will be produced during execution of the Work:

1. Sediments containing 50 mg/kg PCB or more, dry weight must be disposed in a facility licensed or permitted to accept such wastes; and in New York, must be disposed in a landfill licensed or permitted to accept RCRA B007 waste;
2. Sediments containing less than 50 mg/kg of PCB, dry weight, are considered Non-TSCA-level material and may be disposed at the Buffalo Harbor CDF #4.
3. Debris encountered shall be categorized and handled as either materials that can be decontaminated as specified in Section 01 72 20, Decontamination, or simply disposed as TSCA wastes.

C. TSCA processing shall be done on the Riverbend site shown on Drawing TS-4. If an access agreement cannot be obtained for use of the Riverbend site the Contractor shall select one of the other three possible TSCA processing facility sites as shown on Drawing TS-4 based on discussions and negotiations with the property owners of the different sites. These four property owners have been approached about use of their property for TSCA processing and all have expressed interest in discussing the leasing of a portion of their property for this purpose. Contractor shall be responsible for securing a written agreement for use of the TSCA processing site. The NYSDEC finding of no significant adverse environmental impact issued for this work presumes that the Riverbend site will be used for TSCA-level material processing. If another location is selected by the Contractor the Contractor is responsible for obtaining all required permits.

D. The TSCA processing site configuration shown on the Drawings is provided for informational purposes only and is subject to change based on Contractor's approach to Work. The TSCA processing site configuration shown on the Drawings is provided for informational purposes only and is subject to change based on Contractor's approach to Work. Any changes are subject to Owner's Representative's and regulatory agency approval.

E. Contractor is responsible for executing an access agreement with their selected off-site property so they can construct and operate the TSCA-level sediment processing facility, provide for offloading of the dredged material, process the material to control moisture to meet the paint filter test, and load the material for transport of the dredged material to an approved landfill.

F. Contractor is responsible for executing the necessary agreements with the designated disposal facilities.

G. Contractor may propose and submit changes to the approach indicated in the Contract Documents for Owner's Representative's approval. Significant modifications will also require NYSDEC and EPA approval. The Contractor is responsible for preparing documents describing and justifying any proposed modifications for submittal by Owner's Representative or Owner to regulatory agencies at no additional cost to Owner.

1.02 ACTION SUBMITTALS

A. A minimum of 30 days prior to the Preconstruction Conference, provide Owner's Representative with a work plan describing proposed approach to processing, transportation, and disposal of TSCA-level materials dredged from DMU 8b. The work plan shall include the following:

1. Management of TSCA-level (hazardous) materials: Handling and decontamination procedures to result in no significant loss of dredge material to any waterway or upland area during loading, transportation and unloading and to avoid cross contamination in accordance with Section 01 57 19, Environmental Controls.
2. Site plan showing:
    a. Loading and unloading areas.
    b. Traffic controls and major equipment routes.
    c. Dewatering area.
    d. Processing area (including provisions for sizing and mixing desiccant into dredged materials).
    e. Stockpile areas for unprocessed and processed materials, equipment and personnel decontamination facilities.
    f. Water storage and treatment facilities.
    g. Stormwater management.
    h. Temporary construction facilities.
    i. Dredge sediments and debris stabilization areas.
    j. Other site controls.

3. Dredged material transportation plan including:
   a. A list and photos of the major equipment to be utilized for off-site and on-site transport of dredged material.
   b. For marine equipment (*e.g.,* tow boats and scows) include operating draft of each and seaworthy inspection or other proof of equipment condition.
   c. For each tow boat or tug proposed for use on this project, its Coast Guard designation, engine rating (hp), and a description of any design features or operating procedures that may reduce sediment resuspension when the tow boat transits the Work Area.
   d. For each barge or scow proposed for use on this project, its volumetric capacity. Also Contractor's proposed method to estimate the volume of sediment in each barge load brought to shore.
   e. Written technical approach to performance of TSCA Work at the TSCA processing site. Supporting equipment and facilities sizing documentation shall be provided.
4. Management of demolition and all other Debris including:
   a. Volume of material.
   b. Methods for removal, handling, stockpiling, and disposal.
   c. Offsite Transportation and Disposal Plan: Provide a transportation travel route map from the sediment and debris staging / processing site to the disposal facilities for each of the waste streams for review and acceptance.

1.03 INFORMATIONAL SUBMITTALS

A. Contractor shall submit Letters of Intent or agreements from the following:

1. Off-site processing property.
2. Landfill permitted to accept materials and debris under TSCA.
3. Landfills permitted to accept materials under RCRA Subtitle D if landfill is located in New York.

PART2 PRODUCTS

2.01 GENERAL

A. Cement Kiln Dust, Portland cement or approved alternative shall be added to the dredged materials to control the moisture content to pass the paint filter test prior to transportation to an off-site disposal facility. Chemical additives shall not be toxic to fish or other fauna or flora if discharged to the river in the effluent from the water treatment plant. Each additive shall be tested by the Contractor for PCBs prior to use onsite. Any chemical additives proposed for use to stabilize dewatered sediments or to enhance dewatering shall be approved by Owner's

Representative prior to use. For the purpose of bidding, assume 10% by weight Type III Portland Cement will be used. Determine suitable reagent and mixing ratio by performing TSCA treatability study in consultation with Owner and Owner's Representative.

PART 3 EXECUTION

3.01 TSCA-LEVEL SEDIMENT DREDGING

A. Perform dredging of TSCA-level materials in DMU 8b prior to dredging of identified Non-TSCA-level materials of DMU 8b has been completed as shown on the Drawings.

B. Do not place Non-TSCA-level materials in same barge as TSCA-level materials.

3.02 TSCA-LEVEL SEDIMENT TRANSPORTATION TO TSCA PROCESSING SITE

A. Place mechanically dredged TSCA-level sediments into dedicated transport barge(s). Transport filled barge to TSCA processing site. Sediment in the barge shall be allowed to settle overnight prior to offloading.

B. Free water in barge(s) shall be pumped to an on-site water treatment facility prior to offloading of dredged material.

C. There shall be no loss of dredged material to any waterway or upland area during loading, transport, and offloading.

D. Provide a sufficient number of barges to maintain a continuity of dredging operations for dredging of both TSCA-level sediment and Non-TSCA-level sediment. Barges shall be compatible with available draft and other horizontal and vertical clearance limitations found in the Buffalo River.

E. Barges employed on the project shall be leak tight hopper-type or equivalent barges. Barges with split hulls will not be permitted. No overflow of water shall be allowed from the barges either during loading of the barges or during transport.

F. Prevent sediment that accumulates on barge railings, coamings or deck surfaces from discharge into any waterway. Discharge of sediments that accumulate on barge surfaces into any waterway shall not be permitted.

G. No free water shall remain in the barge following offloading at the TSCA processing site. Do not discharge any such water or other material generated to any waterway or upland area.

H. Towboats shall have adequate engine capacity to enable efficient transport of loaded barges. Draft and vertical and horizontal clearance requirements of towboats shall be compatible with conditions on the Buffalo River and the inner harbor. The configuration of the towboat propulsion system shall minimize sediment re-suspension. Plan operations so as to control, to the maximum extent practicable, sediment re-suspension generated by towboat maneuvering.

3.03 TSCA-LEVEL SEDIMENT PROCESSING AND OFFSITE DISPOSAL

A. The installation of dewatering and processing equipment and facilities shall be in general conformance with the Drawings and in accordance to manufacturer requirements and/or manufacturer specifications.

B. No vehicular traffic, other equipment, containment system, or other part of the processing system is allowed within 20 feet of any bulkhead or in areas identified as structurally unstable. Any such structurally unstable areas shall be identified in the agreement between the Contractor and owner of the TSCA processing site. Identify and clearly mark vehicular traffic routes on the site. Areas deemed unstable shall either be stabilized or clearly marked and barricaded to prevent traffic in those areas.

C. Processing of dredged material removed by mechanical means shall include proper equipment sizing for handling, dewatering, and temporary stockpiling prior to transport off-site for disposal.

D. Debris shall be processed by either decontaminating as described in Section 01 72 20 Decontamination, and disposing at the CDF, or by disposing along with the TSCA-level sediment if acceptable by the selected TSCA disposal facility.

E. Dewater and/or add reagent to dredged material so it passes the paint filter test and any other tests or requirements of the disposal facility prior to shipment to the off-site disposal facility. Perform tests of processed dredged material at the frequency required by the disposal facility.

F. Provide a temporary water treatment system to treat wastewater generated during TSCA processing operations as specified in Section 02 83 00, Contact Water Treatment System.

G. Check all equipment, piping and fittings on a daily basis for leaks, cracks, or other damage. All damage shall be repaired immediately. Any leaks, spill, or other losses of sediment, contact water or other contaminated substances on the TSCA processing site shall be cleaned up to background levels by Contractor.

H. Trucks used to transport TSCA-level sediment shall be provided with a watertight liner prior to loading.

I. Prior to leaving the TSCA processing site, sediment and soil shall be removed from the exterior of vehicles by high pressure washing in accordance with Section 01 72 20, Decontamination.

J. Operate the sediment dewatering and processing equipment according to the manufacturer’s operating instruction.

K. Cover processed sediment stockpiles with tarpaulins or other approved materials to prevent precipitation from entering the sediment and to control release of dust. Adequate anchors shall be provided to prevent the covers from being disturbed by wind. Stockpile areas will be covered at the end of the day and over weekends and at other times except when materials are being added or removed from the stockpiles or when the stockpile material is being allowed to dry.

L. Do not mix dredged material classified as TSCA wastes with non-TSCA wastes.

M. Dredged material may be transported off-site for disposal by rail, truck, or barge. Contractor is responsible for meeting all federal, state, and local requirements for transport of contaminated materials.

N. Process dredged material at a rate required to complete the Work within the project schedule. Near continuous operation of processing equipment to avoid storing excessive quantities of dredged material on the site, or storing dredged material for processing at a slower pace shall be at the Contractor's sole discretion.

O. Determine the most effective mode of available transportation and hold the Owner harmless for delays incurred as a result of interruption of selected transportation modes.

END OF SECTION

SECTION 02 83 00
CONTACT WATER TREATMENT SYSTEM

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope:

1. This section provides requirements for a Contact Water Treatment System for the processing of TSCA-level sediments, decontamination water, and on-site stormwater.
2. The treatment system shall include all necessary equipment, tanks, pumps, piping, valves, connections, electrical and instrumentation for the system to operate correctly and integrate correctly into the TSCA-level sediment processing and other on-site support operations to reliably treat contact water.
3. The anticipated location (Riverbend Site) of the Treatment System is shown on the Drawings. Final placement shall be approved as part of the Contractor's work plan as required in Section 02 81 00, Processing, Transport, and Disposal of TSCA-Level Sediment.

B. Related Sections:

1. Section 01 11 01, Health, Safety, Environment, and Emergency Response.
2. Section 01 33 00, Submittal Procedures.
3. Section 01 50 00, Temporary Facilities and Controls.
4. Section 01 57 19, Environmental Controls.
5. Section 35 20 23.13, Environmental Dredging.
6. Section 02 81 00, Processing, Transport and Disposal of TSCA-Level Sediment.

1.02 DEFINITIONS

A. Contact water: stormwater, decontamination water, washdown water, dust suppression water or any other drainage water that contacts TSCA-level contaminated sediment or debris during site remediation, including pore water that is released from dredged sediment at any point in the dredged materials management process and water used in the decontamination of equipment or Debris. Does not include water generated during dredging or handling of non-TSCA-level sediment.

1.03 PERFORMANCE SPECIFICATION

A. This specification does not specify type, quantity, or sizes of all equipment necessary to meet the treatment requirements. This specification provides the required

Treatment System effluent concentration criteria, anticipated average and maximum flow rates, expected influent concentrations, and minimum equipment and operating requirements in general terms. All equipment necessary to meet the treatment performance specification shall be selected and sized by the Contractor based on the performance criteria listed in this specification. Contact water treatment system needs to be capable of running for duration of TSCA-level sediment dredging and management time frame.

1.04 ANALYTICAL INFORMATION

A. Results from sampling activities and the remediation strategy are summarized in the Statement of Work.

B. The elutriate data for sediments is provided as a supplement to this section (see paragraph 3.08 below).

1.05 OPERATIONAL PARAMETERS

A. Contractor shall pump contact water generated from the TSCA-level sediment processing onsite into temporary water storage tanks. Contractor is responsible for determining the number and configuration of the water storage tanks.

B. A portion of the temporary water storage tanks may be used as a clarifier. Solids removed by the clarifier shall be treated onsite along with dredged sediment.

C. Treated effluent shall be discharged directly to the Buffalo River or into the sanitary sewer for subsequent treatment by the Buffalo Sewer Authority (BSA), depending on system design and permits. Treatment System is required to meet the disposal requirements of the SPDES Permit or BSA Pretreatment Permit listed in paragraph 1.09 B of this specification or the limits specified in the most current permit issued for the site.

D. During and after completing all operations, in accordance with local, State, and Federal regulations and requirements, collect, sample, transport, and properly dispose of all treatment process residuals, including but not limited to sludge, debris, spent activated carbon, spent cation exchange media, remaining treatment chemicals or contaminated equipment. Profiles and proposed transporters and disposal facilities shall be submitted to the Owner’s Representative for each of the separate waste streams generated.

E. When completion of the contact water treatment activities have been verified by the Owner’s Representative, dismantle, decontaminate, and remove all treatment equipment and residuals. Restore the ground surface in the area of the Treatment System to preconstruction conditions after remediation activities are complete. Equipment decontamination shall be performed and a visual inspection performed. If acceptable then wipe testing and analytical results shall be performed

demonstrating the surfaces of the decontaminated equipment or materials meet the TSCA cleanup requirements.

F. Operate the Treatment System as often as necessary. The contact water treatment system needs to be capable of running for the duration of the TSCA-level sediment dredging and management activities.

G. An operator shall be present during plant operations. Operator qualifications shall include the following:

1. Must have current New York State certification or license for water treatment.
2. Must have minimum of 4 years experience in groundwater or wastewater treatment plant operation.

1.06 QUALITY ASSURANCE

A. Treatment System Supplier's Qualifications: Supplier shall have a minimum of five (5) years experience of installing and operating substantially similar systems, and shall be able to show evidence of at least five installations, of the same size and type, with satisfactory operational experience.

B. When two or more units of equipment for the same purpose are required they shall be the product of one manufacturer, unless otherwise approved by the Owner's Representative.

C. Products used in the Work of this Section shall be produced by manufacturers regularly engaged in the production of such items and have a successful history of product acceptability, as interpreted by Owner's Representative.

1.07 ACTION SUBMITTALS

A. Shop Drawings: Submit the following:

1. Submit sufficient literature, detailed specifications, and drawings to show dimensions, configuration at the site, make, style, speed, size, type, horsepower, service factors, efficiency, materials used, design features, internal construction, weights, process calculations, unit loading rates, expected chemical usage and any other information required by Owner's Representative for review of all Treatment System equipment and expected operation. No equipment will be accepted, and installation will not be allowed until such submittal has been approved.
2. Additional requirements for information to be included with Shop Drawings are specified below:
   a. Gauges and monitoring devices.
   b. Written description of the operation of each unit process.

c. Written description of Treatment System sequence of operation.
d. Material list.
e. Surfactants or flocculants to be used to increase the dropout of sediments and fine particles in the influent in the sediment box or sediment tubes
f. Submit a certificate from carbon and metals media manufacturers listing nomenclature, composition, and characteristics of the media
g. List of chemicals required and storage requirements

B. Operation and Maintenance (O&M) Manual of contact water treatment system for review. O&M Manual shall address backwashing requirements for filters.

C. Operator Qualifications. Qualifications and experience of proposed operator, demonstrating knowledge of operating similar systems in similar circumstances and any certifications required by state or local regulations.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Contractor shall be responsible for safe transportation, including all freight costs for delivery to the Site, procuring any necessary permits, handling, and proper storage of materials specified in this Section or necessary for the operation of the system.

1.09 PERFORMANCE CRITERIA

A. Provide a temporary turn-key treatment system capable of reliably and consistently removing constituents of potential concern from the contact water. The system shall be designed for continuous flow in automatic operation and also be capable of manual operation. Treatment System shall be operational prior to initiation of TSCA-level sediment dredging activities.

B. Operate the Treatment System to comply with the SPDES permit or BSA pretreatment discharge limits and permit that is obtained by the contractor. The limits in the following table are provided for reference. However, the measurement frequencies shown are for a longer term deployment. Contractor shall expect more frequent testing criteria will be required under a specific permit for this project.

	Discharge Limitations			**Minimum Monitoring Requirements**		
Parameter	**Daily Average**	**Daily Max**	**Units**	**Measurement Frequency**	**Sample Type**	**Footnote**
Flow	Monitor	500	GPM	Continuous	Meter	
pH (range)	6.0 to 9.0		SU	Monthly	Grab	1
Total Suspended Solids	NA	20	mg/l	Monthly	Grab	1

Parameter	Discharge Limitations		Units	Minimum Monitoring Requirements		Footnote
	Daily Average	Daily Max		Measurement Frequency	Sample Type	
Oil & Grease	NA	15	mg/l	Monthly	Grab	1
Benzene	NA	5.0	µg/l	Monthly	Grab	1
Ethylbenzene	NA	5.0	µg/l	Monthly	Grab	1
Toluene	NA	5.0	µg/l	Monthly	Grab	1
Xylene, Total	NA	15.0	µg/l	Monthly	Grab	1
Chlorobenzene	NA	10.0	µg/l	Monthly	Grab	1
Fluorene	NA	10.0	µg/l	Monthly	Grab	1
Napthalene	NA	10.0	µg/l	Monthly	Grab	1
2-Methylnapthalene	NA	10.0	µg/l	Monthly	Grab	1
Phenanthrene	NA	6.0	µg/l	Monthly	Grab	1
Aroclor 1260	NA	0.065	µg/l	Monthly	Grab	1,2
Copper, Total	NA	0.027	mg/l	Monthly	Grab	1
Iron, Total	NA	1.2	mg/l	Monthly	Grab	1
Lead, Total	NA	0.034	mg/l	Monthly	Grab	1
Mercury	NA	0.05	µg/l	Monthly	Grab	1,3
Zinc, Total	NA	0.10	mg/l	Monthly	Grab	1
Chlorine, Total Residual	NA	0.1	mg/l	Monthly	Grab	1,4

Footnotes:

(1) The minimum measurement frequency shall be monthly following a period of 8 consecutive weekly sampling events showing no exceedances of the stated discharge limitations.

(2) PCBs must be monitored using EPA method 608 with the test procedures set forth in 40 CFR 136. The laboratory must attempt to achieve a MDL of 65 ng/l per Aroclor or Department approved effluent specific MDL. All values above the MDL must be reported. Monitoring requirements may be modified in the future if a method superior to 608 is approved for general use.

(3) Mercury – analysis using either EPA Method 1631 or 245.7

(4) Monitoring for total chlorine residual is only required if chlorine or hypochlorite is added for iron control.

Contractor will supply Owner's Representative approved temporary WWT System in order to achieve effluent requirements as indicated in the SPDES permit requirements.

C. Contractor shall estimate maximum rate of wastewater generation based on the sources of wastewater listed below and shall size components of the water treatment system accordingly.

1. Free water that is pumped out of the barge;
2. Drainage from dredged sediment;
3. Decontamination water;
4. Precipitation in the TSCA staging area; for a 25 year, 24-hour storm.
5. Backwash wastewater from the onsite water treatment system.

D. Attempt to keep the volume of water in the equalization tanks to a minimum.

E. The constituents of potential concern are metals, PCBs, PAHs and suspended solids. Elutriate data for on-site sediments are shown in the supplement to this section. During storm events, flow will also be of concern. Characteristics of influent water will vary depending on dewatering methods employed by Contractor and amount of solids pumped with influent water.

F. Supply a treatment system capable of treating the peak flow of wastewater generated by a 25 year, 24 hour storm event.

G. Include duplicates or readily available replacements (i.e., available within 2 days) for the metals and PCB treatment trains.

H. Take precautions to minimize the solids content of the influent water pumped to the Treatment System.

I. Ensure that pumps are constructed of materials compatible with their intended service and sized to handle maximum flows as specified.

J. Select system equipment and piping to resist corrosion.

K. Pretreat the influent water with flocculent or polymers to increase the settlement time in the sediment box or sediment tubes.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 INSPECTION

A. Owner’s Representative shall have full access to the Treatment System at all times it is setup onsite.

B. Make sample splits and analytical results available to Owner’s Representative upon request.

3.02 MANUFACTURER'S SERVICES

A. Furnish the services of qualified factory-trained engineers or technicians necessary to assist in the installation, supervision of system check out, and performance of the Functional and Performance Demonstration tests.

3.03 INSTALLATION

A. Locate the temporary system in a manner which prevents run-on of storm water into the structure or associated areas.

3.04 DEMONSTRATION TESTING

A. Performance Demonstration:

1. A Performance Demonstration Test shall be conducted prior to commencement of full-scale operations. Provide Owner's Representative a minimum of one-week notice prior to the start of the test. Due to the limited amount of contact water that is anticipated to be available at the start of operations, this test will be conducted utilizing river water from upstream of the contaminated site locations. The test shall be conducted during a period of continuous operation. Should operations be interrupted for any reason, the test shall be rescheduled and repeated for the full duration. Provide Owner's Representative with a minimum of a two day notice prior to the start of the rescheduled test.
2. Treat a minimum of 40,000 gallons for the Performance Demonstration.
3. The purpose of the Performance Demonstration shall be to demonstrate the ability of the Treatment System to meet the performance criteria under maximum operating rates. Costs associated with the performance demonstration shall be a part of the lump sum price for the treated process water.
4. During Performance Demonstration:
    a. Demonstrate to Owner's Representative's satisfaction proper operation of all materials and equipment within manufacturers' specifications.
    b. Establish the operating characteristics of the system which will be used by Contractor to monitor the ongoing performance of the system during full operation.
    c. Collect and analyze treated influent and effluent samples at a frequency of 1 per day as required to demonstrate equipment performance.
    d. Store treated effluent water on-site until analytical results meet discharge requirements.
    e. The following parameters shall be tested:
        1) All parameters listed in applicable discharge permit.
        2) Total Suspended Solids.
        3) Speciated PCBs.
    f. Provide full access to Owner's representative to all equipment and provide assistance, as requested, in QA sample collection.
5. During the Performance Demonstration, Owner's Representative will collect QA samples as deemed appropriate by Owner's Representative.
6. Record all results of the Performance Demonstration Test, including results of samples collected and analyzed by Owner's Representative. Should the demonstration test indicate operational problems or permit violations, perform the necessary alterations to resolve the problems and arrange for re-inspection by Owner's Representative to review the alterations. Contractor is responsible for all costs associated with the repeat Performance Demon-

stration. Contractor shall report the results of the Performance Demonstration Test within 10 days of completion.

3.05 FULL-SCALE OPERATION

A. Following completion of the Performance Demonstration and after Contractor has satisfied the Owner's Representative and the appropriate Regulatory Agencies that the system is ready for operation; initiate full scale treatment operations.

B. SPDES (or BSA) implementation reports will be submitted regularly to the authority having jurisdiction in accordance with permit requirements. Owner's Representative shall receive a copy of all such reports.

3.06 DEMOBILIZATION/DECONTAMINATION

A. Upon completion of all remediation activities, dismantle and remove the treatment system, utilities, or other structures or appurtenances installed to support or maintain the system or activities conducted therein.

B. Decontamination of equipment shall be in accordance with the Section 01 72 20, Decontamination.

C. All residues and spent chemicals shall be properly disposed of in compliance with all applicable local, state and federal regulations.

D. Restore area to preconstruction condition.

3.07 ACCEPTANCE

A. Treatment system requirements shall be considered met when all remediation activities are complete and all contact wastewater associated with the remediation activities has been successfully treated.

3.08 SUPPLEMENT

A. The supplement listed below, following "End of Section", is part of this Specification.

1. Table 1; Elutriate Data for Sediments.

END OF SECTION

		FILTERED ELUTRIATE										TOTAL ELUTRIATE									
Client Sample ID: Lab Sample ID: Date Sampled: Type Matrix: GC Semi-volatiles Units	SPDES Permit (ug/l)	FE ug/l		FE ug/l		FE ug/l		FE ug/l		FE ug/l		TE ug/l		TE ug/l		TE ug/l		TE ug/l		TE ug/l	
Aroclor 1016		0.21	U	0.21	U	0.19	U	0.19	U	0.19	U	0.19	U	0.20	U	0.20	U	0.19	U	0.19	U
Aroclor 1221		0.35	U	0.35	U	0.31	U	0.31	U	0.31	U	0.31	U	0.32	U	0.33	U	0.31	U	0.31	U
Aroclor 1232		0.23	U	0.23	U	0.21	U	0.21	U	0.21	U	0.21	U	0.22	U	0.22	U	0.21	U	0.21	U
Aroclor 1242		0.10	U	0.10	U	0.089	U	0.089	U	0.089	U	0.089	U	0.094	U	0.096	U	0.089	U	0.089	U
Aroclor 1248		0.29	U	0.29	U	0.25	U	0.25	U	0.25	U	0.25	U	0.27	U	0.27	U	0.25	U	0.25	U
Aroclor 1254		0.13	U	0.13	U	0.11	U	0.11	U	0.11	U	0.11	U	0.12	U	0.12	U	0.11	U	0.11	U
Aroclor 1260	0.065	0.16	U	0.16	U	0.14	U	0.14	U	0.14	U	0.14	U	0.15	U	0.15	U	0.14	U	1.0	
Total PCB																				1.0	
Metals Analysis Units		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Aluminum		200	U	200	U	200	U	200	U	200	U	1810		358		858		491		876	
Antimony		6.0	U	8.2		6.0	U	6.0	U	25.8		6.0	U	6.0	U	6.0	U	6.0	U	31.3	
Arsenic		13.8		7.4		9.1		5.0		4.2		22.8		6.4		11.3		9.2		4.6	
Barium		200	U	200	U	200	U	200	U	200	U	200	U	200	U	200	U	200	U	200	U
Beryllium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Calcium		53100		83800		69700		61900		70800		51800		84600		68200		60100		77700	
Chromium		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cobalt		50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Copper	27	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	109	
Iron	1200	148		162		233		250		140		1120		413		1510		1710		1320	
Lead	34	3.0	U	3.0	U	3.0	U	3.0	U	10.0		9.9		3.8		3.0	U	3.0	U	343	
Magnesium		118000		193000		167000		146000		146000		111000		194000		163000		140000		156000	
Manganese		1020		630		4140		3200		363		1060		693		4220		3170		386	
Mercury	0.05	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.26	
Nickel		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Potassium		54900		74500		70400		64100		51600		51100		75200		69500		61900		55500	
Selenium		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Sodium		853000		1560000		1450000		1240000		1120000		809000		1630000		1390000		1230000		1240000	
Thallium		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Vanadium		50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Zinc	100	20	U	20	U	20	U	20	U	44.0		20	U	20	U	20	U	20	U	412	

Notes: BS = Bulk Sediment; FE = Filtered Elutriate; FSW = Filtered Site Water; TE = Total Elutriate; TSW = Total Site Water; U = Not Detected

Sample intervals are 0 to 3 feet.
Highlighted results exceed the SPDES Permit.

		FILTERED SITE WATER					TOTAL SITE WATER				
Client Sample ID: Lab Sample ID: Date Sampled: Type Matrix: GC Semi-volatiles Units	SPDES Permit (ug/l)	FSW ug/l	FSW ug/l	FSW ug/l	FSW ug/l	FSW ug/l	TSW ug/l	TSW ug/l	TSW ug/l	TSW ug/l	TSW ug/l
Aroclor 1016		0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	0.19 U	0.21 U	0.19 U	0.19 U	0.19 U
Aroclor 1221		0.33 U	0.33 U	0.31 U	0.31 U	0.31 U	0.31 U	0.33 U	0.31 U	0.31 U	0.31 U
Aroclor 1232		0.22 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U
Aroclor 1242		0.096 U	0.096 U	0.089 U	0.089 U	0.089 U	0.089 U	0.097 U	0.089 U	0.089 U	0.089 U
Aroclor 1248		0.27 U	0.27 U	0.25 U	0.25 U	0.25 U	0.25 U	0.28 U	0.25 U	0.25 U	0.25 U
Aroclor 1254		0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U
Aroclor 1260	0.065	0.15 U	0.15 U	0.14 U	0.14 U	0.14 U	0.14 U	0.16 U	0.14 U	0.14 U	0.14 U
Total PCB											
Metals Analysis Units		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Aluminum		200 U	200 U	200 U	200 U	200 U	398	828	1040	366	282
Antimony		6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U
Arsenic		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.2	3.0 U	3.0 U
Barium		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Beryllium		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Calcium		53600	75500	61200	54500	63000	57100	76100	59200	55700	67200
Chromium		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Copper	27	10 U	10 U	10 U	10 U	10 U	10 U	10 U	31.2	10 U	19.3
Iron	1200	100 U	154	100 U	100 U	100 U	615	1800	1930	515	629
Lead	34	3.0 U	3.0 U	3.0 U	3.0 U	5.0	3.0 U	3.0 U	6.4	3.0 U	63.5
Magnesium		118000	195000	142000	118000	145000	126000	191000	137000	121000	154000
Manganese		15 U	15 U	15 U	15 U	15 U	34.4	82.1	84.4	26.0	39.4
Mercury	0.05	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Potassium		41300	72900	45100	41400	46000	43800	71700	42700	42100	48800
Selenium		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Silver		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium		863000	1570000	1170000	863000	1170000	921000	1570000	1090000	878000	1250000
Thallium		2.0 U	10 U	10 U	2.0 U	10 U	2.0 U	10 U	10 U	2.0 U	10 U
Vanadium		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	46.5

Notes: BS = Bulk Sediment; FE = Filtered Elutriate; FSW = Filtered Site Water; TE = Total Elutriate; TSW = Total Site Water; U = Not Detected

Sample intervals are 0 to 3 feet.
Highlighted results exceed the SPDES

SECTION 31 05 00
COMMON WORK RESULTS FOR EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

A. Earthwork: This section covers requirements for filling and compaction conducted as part of the following activities:

1. Fill of dredged areas at the habitat restoration sites.
2. Preparation and installation of fill material associated with Submerged Aquatic Vegetation (SAV) beds.
3. Preparation and installation of fill material associated with Emergent Vegetation (EV) beds.
4. Soil Choking.
5. Preparation and installation of fill material associated with restoration features such as rootwads and modified LUNKERS boxes.

1.02 PROJECT CONDITIONS

A. No fill material shall be placed in the navigation channel during the restoration activities. Additionally, earthwork will not be permitted outside the Project boundaries as shown on the Drawings.

B. Material delivery and on site stockpiling must be coordinated with ongoing site operations, including the dredging operations.

C. Only stockpile fill materials at the staging area. Do not stockpile at individual restoration sites, or on adjacent land outside of the restoration site boundaries without written consent of the Owner's Representative and the Property Owner.

D. Protect all partially completed work; Buffalo River is known to rise rapidly during storm and seiche events.

E. Do not remove, change the location of, obstruct, willfully damage, make fast to or interfere with any Aid to Navigation except in accordance with approval of the New York State Canal Corporation (NYSCC).

1.03 RELATED WORK

A. Section 01 57 19, Environmental Controls.

B. Section 31 11 00, Clearing and Grubbing.

C. Section 31 23 23, Fill for Habitat Restoration.

D. Section 31 25 00, Erosion and Sedimentation Controls.

E. Section 32 05 33, Common Work Results for Planting.

F. Section 32 06 90.13, Planting Schedule.

1.04 REFERENCE STANDARDS

A. New York State Department of Transportation Standard Specifications.

B. ASTM D 1557 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

C. ASTM D 2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (shallow depth).

1.05 INFORMATIONAL SUBMITTALS

A. Obtain and submit any required federal, state, and local permits for excavation and placement of fill within/near a waterway.

1.06 ACTION SUBMITTALS

A. At least two weeks prior to beginning site work, submit a Habitat Restoration Work Plan.

B. Within 30 days of final acceptance and as a condition of final payment, a Final Habitat Restoration Project Report.

1.07 QUALITY ASSURANCE

A. Fill material and samples of the fill material shall meet the requirements under Section 31 23 23, Fill for Habitat Restoration.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. Use only approved fill materials per Section 31 23 23, Fill for Habitat Restoration.

B. Soils from the site may not be used as borrow source material unless it meets the criteria for fill as specified in Section 31 23 23, Fill for Habitat Restoration.

PART 3 EXECUTION

3.01 HABITAT RESTORATION WORK PLAN

A. The habitat restoration work plan shall be consistent with the requirements of the Contract Documents and must provide at a minimum sections on waste handling, site work controls, Quality Assurance/Quality Control (QA/QC) protocols, temporary soil erosion and sedimentation controls, equipment description including safety devices to be utilized for the work, identification of required permits and copies of obtained permits, staging/site area layout, a detailed schedule of all tasks required to fulfill the Work of the project, and a work sequencing for each individual restoration site.

1. For the section on staging/site area layout, if applicable, include the following items at a minimum:
   a. Area to be cleared and grubbed and restored upon completion.
   b. Equipment and material staging areas.
   c. Equipment maintenance and fueling areas.
   d. Any site trailers.
   e. Access roads and haul routes, including any on river hauling, access points or any trans-load operations.
   f. Any temporary fencing or other security measures.
   g. Soils staging areas.
   h. Personal vehicle parking areas.
2. For the section on work sequencing, describe procedures to be utilized for the Work at each of the five restoration sites. Include procedures for completing all of the restoration features as shown on the Drawings at each site.
3. For the section on site work controls include provisions for fugitive emissions to the air and dust control, dewatering and water management, if necessary, and navigational controls or markings as needed.

3.02 PREPARATION

A. Deliver, handle and transport fill and stone materials in a manner and with equipment that will prevent intermixing of soil types, segregation or contamination.

B. Fill and stone material shall be stockpiled at locations approved by the Owner's Representative in sufficient quantities to meet schedule requirements.

C. Stockpiles shall be constructed and maintained so they are well drained, free of foreign materials, and of adequate bearing capacity to support the weight of materials placed thereon.

D. Separate differing materials with substantial dividers or stockpile apart to prevent mixing.

E. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

F. Provide temporary erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties. Refer to Section 01 57 23, Storm Water Pollution Control and Section 01 57 19, Environmental Controls.

G. Establishing an accurate method of horizontal and vertical control before earthwork begins; the proposed method of control system shall be subject to approval by the Owner's Representative (see Section 02 21 00, Surveys). All fill areas shall be laid out from horizontal and vertical control points prior to placement of any material within the Restoration Sites. All measurements shall be taken from these points.

H. Prior to beginning placement of fill, site clearing and grubbing shall be conducted as specified in Section 31 11 00, Clearing and Grubbing.

3.03 GENERAL PLACEMENT OF IN-WATER FILL

A. Filling will be conducted once dredging activities have been completed at a particular restoration site. It is required that common in-water fill be placed outside the fish spawning season (see Section 01 10 00, Summary of Work) and at least one season prior to planting to allow the material to consolidate prior to the planting season. Place fill in areas as identified on the Drawings. Filling shall only begin upon Owner's Representative's approval.

B. Conduct Initial bathymetric survey and terrestrial survey over footprint of habitat restoration area prior to initiating the Work to verify the site elevations.

C. In the specified areas for in-water fill with SAV and EV planting, placement of fill shall begin at the site boundary identified on the Drawings. Accurately and smoothly spread the materials over the specified areas to the lines, grades, thicknesses, slopes, and tolerances as shown on the Drawings.

D. Placement of fill material shall be accomplished such that final material grade forms a uniform layer of required thickness, as appropriate, and surfaces are leveled to the slopes and elevations indicated on the Drawings. Placement methods shall minimize the resuspension and mixing of bottom sediments and fill material and minimize the downstream loss of fill materials during placement. The in-water fill layer shall be placed in multiple thin layers (a minimum of two thin layers at each placement location) of comparable thicknesses. The placement of multiple layers may occur during a single occupation of the area by the placement equipment. The fill material shall be installed in a manner that provides a continuous uniform surface over the area specified for in-water backfill. Perform

placement bathymetric surveys to confirm the slopes and elevations have been met.

E. The Contractor is responsible for the control and replacement of any loss of fill due to erosion or settlement prior to planting of the SAV and EV beds.

F. Perform bathymetric surveys prior to spring planting of SAV and EV beds in accordance with Section 02 21 00, Surveys.

3.04 SOIL CHOKING

A. Soil Choking consists of in-water fill in areas of existing rip rap and a final layer of the appropriate planting soil material. In-water fill elevations shall be placed in lifts with a maximum thickness of six (6) inches until areas have reached final grade, as specified on the Drawings.

B. Contractor shall ensure that efforts are made to minimize compaction of surface material.

3.05 GRADING

A. Uniformly grade areas to a smooth surface free from irregular surface changes.

B. Provide a smooth transition between adjacent existing grades and new grades.

3.06 PROTECTION

A. Repair and reestablish grades where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions, before Project correction period elapses, as defined by the date of substantial completion.

B. The final grades within a tolerance of 1-3 inches can be made up with planting material and only elevation differences greater than 3 inches shall require additional fill.

3.07 HAULING AND STOCKPILING

A. Fill material shall be stockpiled at the staging area in an uncontaminated area as approved by the Owner’s Representative. The stockpiled fill materials shall be adequately covered to prevent runoff as specified in Section 01 57 23, Storm Water Pollution Control and Section 01 57 19, Environmental Controls. Side slopes of stock piles shall not be steeper than 2H: 1V.

3.08 PREPARATION FOR PLACING SAV PLANTING SOIL AND EV PLANTING SOIL

A. Ensure and obtain Owner's Representative's approval that subgrade filling activities are complete and ready to receive topsoil.

B. Eliminate uneven areas and low spots in subsoil. Remove debris, roots, branches, and stones, in excess of 3 inches in size.

C. Scarify subgrade to a depth of 3 inches where select fill is designated for placement. Scarify in areas where equipment has compacted subsoil.

3.09 PLACING SAV PLANTING SOIL AND EV PLANTING SOIL

A. Place the specified type of select fill, as indicated on Drawings and in Section 31 23 23, Fill for Habitat Restoration, in designated areas to lines and grades shown on the plans.

B. Finely grade the planting soil, eliminating rough or low areas, maintain levels, profiles, and contours of subgrade.

C. Remove stones greater than 3 inch, roots, grass, weeds, debris, and foreign material while spreading the planting soil materials.

D. Use equipment appropriate for spreading the material in a uniformly thick layer across the lift.

E. Remove surplus select fill and common fill from each Site upon completion of spreading the materials. Remove and dispose of all stockpiles and restore any areas adjacent thereto which have been disturbed by the Contractor to a condition that will be acceptable for seeding.

F. Protect placed fill materials from degrading as specified in Section 31 25 00, Erosion and Sedimentation Controls. Materials that become unsuitable during construction will be removed and replaced to the satisfaction of the Owner's Representative at no additional cost.

G. After fill installation, install vegetation at the times indicated in the planting schedule (see Section 32 06 90.13, Planting Schedule) in accordance with Sections 32 91 00, Planting Preparation, and 32 93 00, Plants.

3.10 FINAL HABITAT RESTORATION PROJECT REPORT

A. The final report shall summarize information included in the construction and maintenance records as submitted throughout the project. The report shall summarize the work that has been completed, the amount of each type of fill materials used in restoration, the amount of materials planted and utilized, and the area each was installed on. The report shall include drawings that depict the date, location

and type of Plantings installed, including methods, quantities and species. Drawings shall be submitted with the Initial and Final acceptance requests for the initial planting and for any maintenance re-planting.

END OF SECTION

SECTION 31 11 00
CLEARING AND GRUBBING

PART 1 GENERAL

1.01 DESCRIPTION

A. This section includes the requirements for site preparation, clearing and grubbing. This Work shall consist of clearing, grubbing, removing and disposing of select trees, invasive vegetation, rocks, brush, shrubs, and stumps within the TSCA processing facility, staging areas and other areas as specified and shown on the Drawings.

1.02 RELATED SECTIONS

A. Section 01 57 19, Environmental Controls.

B. Section 01 57 23. Storm Water Pollution Control.

C. Section 02 41 19, Selective Demolition.

1.03 DEFINITIONS

A. Stripping: Stripping shall consist of removal and disposal of the uppermost layer of soil, which normally contains organic matter, grasses and small plants, and topsoil.

B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction.

C. Tree-Protection Zone: Individual trees or areas surrounding individual trees or groups of trees to be protected during construction.

D. Hazardous Waste: A hazardous waste is any material listed under NYSDEC rules and regulations in 6 NYCRR Part 371, http://www.dec.ny.gov/regs/14898.html. If materials in this category are encountered, stop work and consult with Owner's Representative on an appropriate course of action.

1.04 REQUIREMENTS

A. Materials generated by the Work shall not be disposed of by burning.

B. Cleared and grubbed materials shall be stored at the staging area only, with temporary staging (less than one week) allowed at the individual restoration sites.

C. Oversized clearing and grubbing materials, construction and demolition (C&D) materials such as concrete, asphalt, brick, etc. and other non-hazardous waste shall be removed from the individual restoration sites to the staging area.

D. Dumping of spoil material into any stream corridor, flood plain, or surface water is prohibited.

E. Boulders larger than 1.5 feet in diameter removed as part of clearing and grubbing shall be relocated for use onsite as part of the restoration. Coordinate relocation with Owner's Representative.

F. All cleared and grubbed materials from the TSCA processing facility and other project staging areas shall be disposed of offsite at an appropriate facility in accordance with all laws, rules, and regulations.

1.05 ACTION SUBMITTALS

A. Submit, prior to commencing Work, a Handling and Transport Plan for clearing and grubbing wastes as part of the Contractor's overall Work Plan. This plan should include the designated locations and details of the stockpiles and temporary storage areas at each of the restoration sites, as well as the plan for moving materials between the individual restoration sites and the staging area. This plan may be submitted as a part of the Habitat Restoration Work Plan as specified in Section 31 05 00, Common Work Results for Earthwork.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to clearing and grubbing operations, prepare areas to the extent necessary to designate areas that are outside of the boundaries to be cleared and grubbed. The Owner's Representative will perform a site walk with the Contractor to establish the limits of the areas to be cleared and grubbed, to be cleared but not grubbed, or areas, objects, or features designated to remain undisturbed. In general the work areas shall include TSCA processing facility, access roads, staging areas, and other areas as shown on the Drawings. The Owner's Representative may designate fences, structures, debris, trees and brush to be cleared where grubbing is not required. Clearing beyond the area of construction shall be done only where specified.

B. Prior to starting work, lay out and mark areas where plants including trees, shrubs, and stumps are to cleared, grubbed or stripped. Additionally, any Plant-Protection and Tree-Protection Zones as identified for the staging areas should be clearly marked in a separate and distinct manner. The Owner's Representative will then

inspect the site and give authorization to proceed, prior to the Contractor beginning any clearing and grubbing at an individual restoration site. It is the responsibility of the Contractor to protect those features, trees and vegetation selected to remain onsite. If damaged or destroyed, repair or replace in kind at Contractor's expense.

C. The Contractor is responsible for protecting existing utility lines, existing structures to remain, select trees, fences, and poles that are to remain from damage. Notify the Owner's Representative immediately of damage to or an encounter with an unknown existing utility line and repair damage to existing utility lines at no additional cost to the Owner.

D. Collect samples of soil to be disturbed to identify any unacceptable chemical contamination. Samples shall be representative of the first 12 inches of soil and shall be taken at least once for every 500 square yards, with a minimum of one for every area less than 500 square yards. Samples shall be analyzed and compared to the NYSDEC standard for unrestricted residential use. If unacceptable soil is identified, notify the Owner's Representative for direction on how to proceed.

3.02 TEMPORARY SEDIMENT EROSION CONTROL

A. Provide temporary erosion and sedimentation control measures to control soil erosion and discharge of soil-bearing water runoff or airborne dust to the Buffalo River and its tributaries and adjacent properties, according to erosion and sedimentation control requirements of authorities having jurisdiction. Specific methods to be used will be in accordance with Section 01 57 23, Storm Water Pollution Control.

B. On a daily basis inspect, maintain, and repair erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls once re-vegetation of cleared and grubbed areas has been completed.

D. Restore and stabilize areas disturbed during clearing and grubbing activities that were outside of the intended clearing and grubbing areas at no additional expense to the Owner.

3.03 RESUSE OF CLEARED AND GRUBBED MATERIALS

A. Materials cleared and grubbed shall be chipped only with the prior approval of the Owner's Representative. Chipped waste shall be spread in a thin layer onsite in a location identified by the Owner's Representative. With the Owner's Representative's approval wood may be reduced to chips of 1/2 inch maximum thickness by the use of an approved chipping machine or stump grinder. Chips can be stockpiled and used as mulch for planting or may be disposed of at an off-site location. Stumps, tree trunks, and limbs too large for chipping shall be disposed as specified above. Do not chip and spread any species considered an Invasive Species, particularly Japanese Knotweed (*Polygonum cuspidatum* syn. *Fallopia japonica*).

END OF SECTION

SECTION 31 23 23
FILL FOR HABITAT RESTORATION

PART 1 GENERAL

1.01 SUMMARY

A. This section covers requirements for off-site soils and stone that are delivered to site to be used as fill material in the preparation and installation of the SAV, EV and their associated restoration features.

B. On-site materials that conform to these specifications shall be used at the discretion of the Owner's Representative and shall meet all the requirements of the New York State Department of Transportation Standard Specifications (NYSDOT Spec), unless otherwise stated.

C. Products shall consist of:

1. Common in-water fill material;
2. Select fill materials for SAV and EV plantings;
3. Boulders; and
4. NYSDOT Heavy Stone.

1.02 RELATED SECTIONS

A. Section 31 05 00, Common Work Results for Earthwork.

B. Section 31 25 00, Erosion and Sedimentation Controls.

C. Section 31 37 00, Rip Rap.

D. Section 32 91 00, Planting Preparation.

1.03 REFERENCE STANDARDS

A. New York State Department of Transportation, Standard Specifications NYSDOTSPEC (2008).

B. ASTM D 422 - Particle-Size Analysis of Soils.

C. ASTM D 2487 - Classification of Soils for Engineering Purposes (Unified Soil Classification System).

1.04 ACTION SUBMITTALS

A. Prior to beginning work, submit for review:

1. Thirty- (30-) pound (lb) samples sealed in airtight containers and analyses of borrow (fill, or aggregate) materials, including a contact name, address, and phone number for each source, shall be submitted to the Owner's Representative for approval fourteen (14) days prior to beginning any fill activities.
2. Qualifications and/or certifications of the Testing Laboratory shall be submitted to the Owner's Representative for approval twenty one (21) days prior to beginning any fill activities.
3. Schedule of delivery for all fill materials.
4. Certification from suppliers that stone to be supplied for use on this project shall meet the requirements of this section, and that the materials are free from chemical contamination. The Owner's Representative will use 6 NYCRR Part 375 Soil Cleanup Objectives, for unrestricted residential use, as the basis for acceptance of the fill materials. Certification shall be received and approved by the Owner's Representative prior to delivery of stone materials to the Site. The Owner's Representative will be present during the acquisition of these samples from each source.
5. Certified chemical laboratory analysis to verify that all in-water fill materials meet New York State Department of Environmental Conservation specifications for placement of material in water, as detailed in "*In-Water and Riparian Management of Sediment and Dredged Material*", Technical and Operational Guidance Series 5.1.9, November 2004.
6. Certification that soil supplements meet the requirements of the New York State Agriculture and Marketing Law.

1.05 QUALITY ASSURANCE

A. Areas selected as sources of borrow material shall have access guaranteed to the Owner's Representative for inspection and approval or another source shall be found.

B. Collect samples and conduct analytical testing as specified in Section 02 24 23, Chemical Sampling and Analysis of Soils and Sediments to confirm materials are free of contamination.

PART 2 PRODUCTS

2.01 COMMON IN-WATER FILL MATERIAL

A. Common fill for in-water fill shall meet the requirements of NYSDOT SPEC 203-2.02 C – Select Granular Fill and Select Structural Fill. Common fill shall meet the following gradation:

Sieve	Percent by Weight Passing
4"	100
No. 40	0 - 70
No. 200	0 -15

B. In addition, to the requirements mentioned below, Common in-water fill that will be placed in the City Ship Canal shall have a minimum organic content of 1-percent (dry weight basis).

2.02 SELECT FILL MATERIALS

A. SAV Planting Soil shall consist of material provided from an off-site source approved by the Owner's Representative. Clay or plastic soil materials are not appropriate soil types for SAV Planting Soil. Soil for SAV may be naturally occurring or may be manufactured. The SAV Planting Soil shall be well-graded and meet the following requirements:

1. The pH of the material shall be between 5.5 and 7.6.
2. The organic content shall be not less than 6 percent or more than 12 percent, (dry weight basis).
3. The soil used in SAV plantings shall meet the following gradation:

Sieve	Percent by Weight Passing
2 inch	90 - 100
1 inch	85 - 100
¼ inch	75 - 85
No. 200	0 - 10

B. SAV Planting Soil shall not contain any slag, cinders, stones, lumps of soil, sticks, roots, trash, or other extraneous materials larger than 1/2 inch in diameter. Soil shall be free of all noxious weeds (or plant parts). Construction and demolition debris other than uncontaminated land clearing debris shall not be used to manufacture or amend soil.

C. EV Planting Soil shall consist of material provided from an off-site source approved by the Owner's Representative. Clay or plastic soil materials are not appropriate soil types for EV Planting Soil. The EV Planting Soil shall be well-graded and meet the following requirements:

1. The pH of the material shall be between 5.5 and 7.6.
2. The organic content shall be not less than 6 percent or more than 12 percent, (dry weight basis).
3. The soil used in EV plantings shall meet the following gradation:

Sieve	Percent by Weight Passing
2 inch	90 - 100
1 inch	85 - 100
¼ inch	75 - 85
No. 200	0 - 10

D. EV Planting Soil shall not contain any slag, cinders, stones, lumps of soil, sticks, roots, trash, or other extraneous materials larger than 1/2 inch in diameter. Soil shall be free of all noxious weeds (or plant parts). Construction and demolition debris other than uncontaminated land clearing debris shall not be used to manufacture or amend topsoil.

E. Select Fill Testing:

1. Select Fill shall be tested to ensure compliance with the pH, organic content and gradation requirements and certified by the laboratory approved for the work as specified in Section 31 05 00, Common Work Results for Earthwork.
2. Provide laboratory test results and certifications to the Owner's Representative at least fourteen (14) calendar days prior to importation of fill material to the Site. Acceptance of Select Fill will be based upon the test results.

F. Select Fill Sampling Method:

1. The Contractor is responsible for all Select Fill sampling and shall provide the contact information of the laboratory and analytical methods to be used.
2. For stockpiles up to 5,200 cubic yards, a minimum of one sample shall be taken for each 1,300 cubic yards or portion thereof. For stockpiles containing more than 5,200 cubic yards, one sample should be obtained from each of four quadrants that are approximately equal in size.
3. To perform sampling, form a face for the full height of the stockpile at the locations specified by the Owner's Representative. A loader bucket or similar equipment shall then be filled by channeling the full height of the stockpile face, from the bottom to the top, in one operation. The bucket shall then be lowered and emptied by rotation to form a small pile at each sampling location. From this small pile take one shovel full of soil and place in a large container and, either by splitting or quartering, a sufficient amount of mixed select fill shall be taken to fill a standard sampling container.
4. The select fill sample shall be free from refuse, material toxic or otherwise deleterious to plant growth, subsoil, seeds or other viable propagules of invasive plants, woody vegetation and stumps, roots, brush, stones, clay lumps or similar objects. Sod and herbaceous growth such as grass and weeds are not to be removed but shall be thoroughly broken up and mixed with the soil during handling or manufacturing operations.

5. Additional select fill shall not be added to the stockpile after sampling. If additional material is added after the stockpile has been sampled, or if the stockpile is otherwise tampered with, the stockpile will be rejected.

2.03 STONE

A. Riprap for Rock Vanes: For riprap, see Section 31 37 00, Riprap.

B. Heavy Stones:

1. Heavy stones will be required to anchor the coir logs that will be installed along the perimeter of the EV beds. Materials shall meet the requirements under NYSDOT SPEC 620-2.02 for Heavy Stone Filling and shall have a minimum weight of 650 pounds.
2. The stones shall be placed at 5 foot on center on top of the Coir Logs and keyed into the substrate up slope of the coir log. 2’ (length) x 2’ (width) x 1’ (height).

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROLS

PART 1 GENERAL

1.01 DESCRIPTION

A. Erosion and sediment control shall consist of stabilization techniques and structural measures for habitat restoration Work. These measures include:

1. Rolled Erosion Control jute mats placed over a continuous mat of straw will be utilized for stabilizing the ground surface after the clearing for staging areas.
2. The placement of coir logs placed parallel to the shoreline as a wave break for EV plantings.
3. Coir Fabric to retain SAV Planting Soil in the LUNKERS.

1.02 RELATED SECTIONS

A. Section 01 57 23, Storm Water Pollution Control.

B. Section 31 05 00, Common Work Results for Earthwork.

C. Section 31 11 00, Clearing and Grubbing.

D. Section 32 91 00, Planting Preparation.

E. Section 32 92 19, Seeding.

1.03 MANUFACTURER'S QUALIFICATIONS

A. Minimum of five years of experience producing substantially similar materials and able to show evidence of at least five installations in satisfactory operation in similar conditions to the Buffalo River.

B. Engage a registered Professional Engineer legally qualified to practice and experienced in providing the engineering services of the kind indicated. Professional Engineer may be an employee of the manufacturer.

PART 2 PRODUCTS

2.01 PRODUCTS

A. Coir Logs: Coir logs shall be non-vegetated, 12 inch diameter and 20 feet long made from 100 percent decorticated coconut fibers compressed in tubular coir mesh netting. The netting shall consist of a two by two (2 x 2) inch diamond mesh.

B. Coir Fabric for LUNKERS: Coir Fabric shall be used at the site for the installation of Submerged Aquatic Vegetation in the LUNKERS boxes. Coir Fabric shall be machine-produced mats that consist of 100 percent biodegradable jute. The mats shall be of consistent thickness, with jute evenly distributed over the entire area of the mat. The mat shall have a mass per unit area of 0.90 lb/yd^2. The mat shall be covered on the top side with a 100 percent biodegradable woven natural organic fiber net. The netting shall consist of machine direction strands formed from two intertwined biodegradable yarns with cross directional strands interwoven through the twisted machine strands (commonly refer to as a Leno weave) to form approximately a 0.30 x 0.3 inch mesh. The thread pattern on these mats shall not be more than 2 inches transverse stitch spacing. The mat should meet Class II, Type C of the NYSDOT Standard Specifications (latest edition).

PART 3 EXECUTION

3.01 GENERAL

A. The Contractor shall:

1. Inspect, maintain, repair, and replace as necessary the erosion and sedimentation controls throughout the work.
2. Remove the soil and erosion controls of this section at the completion of the Work.

3.02 INSTALLATION OF COIR LOGS

A. The coir log shall be installed perpendicular to the slope at the outer edge of the emergent vegetation bench at elevation 569 feet IGLD as indicated on Drawings. Coir logs shall be stacked two feet high and placed directly on top of the in-water fill prior to placing EV Planting soil. Stacked Coir logs shall be tied together using twine.

B. For logs that adjoin each other, lace together the ends of adjacent rolls with twine by making a number of passes in the end netting between the rolls and pulling the twine taut. Overlapping between adjacent logs shall be a minimum of 1-foot. In places where a coir log does not abut another roll, bend the end inward and bury in the bank to provide stability and prevent dislodging.

C. The coir logs will be held in place on a temporary basis by 2-inch by 2-inch by 4-foot biodegradable oak stakes placed upslope and downslope of the coir logs. The stakes shall be placed every 1 foot alternately along the length of the logs but shall skip over the area where a heavy stone is placed. NYSDOT Heavy stones shall be placed the same day as coir logs to permanently anchor the coir logs (See Section 31 23 23, Fill). Heavy stones will be placed at a minimum frequency of once every 5 feet along the length of the coir logs and shall be keyed into the fill.

3.03 COIR FABRIC FOR LUNKERS

A. Contractor shall place Coir fabric around SAV Planting Soil prior to placement in the LUNKERS.

B. Coir fabric shall be a continuous fabric around the SAV Planting Soil with a minimum of 1-foot of overlap at all seams.

C. Coir fabric shall be held in place with 3-1/8-inch self-tapping screws that will connect the coir fabric to the horizontal member of the knee braces through the bottom of the LUNKERS box.

3.04 MAINTENANCE

A. The installed materials (coir logs) should be inspected regularly for potential damage.

END OF SECTION

SECTION 31 37 00
RIP RAP

PART 1 GENERAL

1.01 SUMMARY

A. Riprap installation includes placement of rock vanes where SAV and EV beds are to be created or enhanced, and in association with outfall protection, as identified on the Drawings.

1.02 RELATED SECTIONS

A. Section 31 05 00, Common Work Results for Earthwork.

B. Section 31 23 23, Fill for Habitat Restoration.

C. Section 31 2 500, Erosion and Sedimentation Controls.

D. Section 32 91 00, Planting Preparation.

1.03 ACTION SUBMITTALS

A. Prior to beginning work, submit as part of the Work Plan (see Section 31 05 00 - Common Work Results for Earthwork) a description of material and method details for performing installation of riprap. This plan shall include material sources, storage and handling methods, quality control measures, testing procedures (if necessary) and placement, spread, and grading procedures with a list of equipment proposed to complete the Work.

B. Two weeks prior to beginning installation of riprap, submit the following for each of the materials:

1. A statement from the material supplier indicating the materials meet the referenced standard New York State Department of Transportation, Standard Specifications.
2. Gradation results for each specified material from the chosen source and supplier.

1.04 QUALITY ASSURANCE

A. The services of a qualified testing laboratory and field testing firm shall be engaged by the Contractor to sample and test selected materials for compliance with these specifications.

PART 2 PRODUCTS

2.01 RIP RAP

A. Rip Rap for rock vanes and outfall scour protection shall be in accordance with NYSDOT Specification Section 620-2.03, Dry Rip Rap, and shall be self-launching, well graded angular stone and have the following gradation:

Stone Size (inches)	Stone Weight (lbs)	Percent Finer by Weight
8	46	10
17	460	50
21	920	85
24	1400	100

1. Material shall contain a sufficient amount of stones smaller than the average stone size to fill in the spaces between the larger stones. Consideration should be given to obtaining stone that is similar in color and texture to the native stone in the Project Area. Stones should be shaped as nearly as practicable in the form of right rectangular prisms.
2. Stone for riprap shall consist of field stone or rough unhewn quarry stone. The stone shall be hard and angular and shall meet the soundness requirements under Section 620 of NYSDOT Standard Specifications. The specific gravity of the individual stones shall be at least 2.5.
3. Riprap should meet all the requirements for soundness and density as specified under Section 620 of NYSDOT Standard Specifications. Contractor is responsible for providing certification from the supplier/manufacturer that material provided meets requirements of soundness, gradation, and density.

PART 3 EXECUTION

3.01 RIPRAP PLACEMENT AT ROCK VANES

A. Material delivery and on-site stockpiling must be coordinated with ongoing site operations.

B. Rock vanes will be placed as specified on Drawings in conjunction with the placement of the SAV and EV beds to provide wave breaks at the shoreline.

C. Rock vanes will be constructed out of riprap which will be stacked until it extends to a height of approximately 2 feet above the streambed. Each rock vane shall be placed at a 30 degree angle from the adjacent river bank, angled upstream into the predominant flow direction. Vane rocks shall be placed so as to produce a smooth finished grade and shall be installed to minimize void spaces between adjacent rocks. The spaces between vane rocks, and between the vane rocks and

footer rocks, shall be filled with spalls of suitable size. The rock vanes shall extend linearly from elevation 569 feet IGLD to elevation 562 feet IGLD, or as specified on the Drawings.

D. Chink all voids in rock vanes such that no voids greater than 4 inches will be present.

E. Rock vanes shall be constructed at locations identified on the Drawings.

F. Any unsuitable or surplus rock materials will be removed from the site at the completion of the Work.

G. In locations where SAV and EV are to be planted, as specified on the Drawings, place SAV Planting Soil (Section 31 23 23 Fill for Habitat Restoration) as specified in Section 31 05 00, Common Work Results for Earthwork, after the construction of rock vanes has been completed. This work will be performed in the spring prior to planting SAV or EV, as specified in Section 32 91 00, Planting Preparation.

3.02 RIPRAP PLACEMENT AT STORMWATER OUTFALL AREAS

A. Riprap shall be placed at the stormwater outfall areas within the restoration areas. The thickness of the riprap layer shall be at minimum 24-inches. Riprap shall be installed so it forms a dense, well graded mass of stone with a minimum amount of voids. Riprap shall be placed to its full thickness in one operation. Do not place riprap by dumping through chutes or other methods that may cause segregation of stone sizes.

B. Contractor is responsible for extending existing outfalls through any new in-water fill such that the stormwater pipe will have a 6-inch extension past the new ground surface. All outfall pipe extensions shall be of similar outfall pipe material and diameter as the existing outfall pipe being extended.

C. Prior to placement of filter and riprap the subgrade shall be prepared to the required elevation and grades. Any fill required in the subgrade shall be compacted to the density of approximately that of the surrounding undisturbed materials.

END OF SECTION

SECTION 32 01 90
OPERATION AND MAINTENANCE OF PLANTING

PART 1 GENERAL

1.01 DESCRIPTION

A. As part of the Contractor's guarantee of plant stock for two (2) years from the time of acceptance of the planting by the Owner's Representative, Contractor shall provide Operation and Maintenance of Plantings for two (2) years after the acceptance of the plant installation in the boundaries of the restoration sites.

1.02 RELATED SECTIONS

A. Section 01 10 00, Summary of Work.

B. Section 31 11 00, Clearing and Grubbing.

C. Section 31 23 23, Fill for Habitat Restoration.

D. Section 31 25 00, Erosion and Sedimentation Controls.

E. Section 31 37 00, Rip Rap.

F. Section 32 92 19, Seeding.

G. Section 32 93 00, Plants.

1.03 REFERENCES

A. Plant Nomenclature: Conform to the latest edition of "Standardized Plant Names" as adopted by the American Joint Committee of Horticultural Nomenclature.

B. Size and Grading Standards: Conform to the current edition of "American Standard for Nursery Stock" – Sponsor – the American Association of Nurserymen Inc., unless otherwise specified.

C. Planting and Care Standards: Conform to the current edition of "The American National Standard for Tree Care Operations" ANSI A300. Sponsor – International Society of Arboriculture, unless otherwise specified.

D. Thunhorst, Gwendolyn A., Wetland Planting Guide for the Northeastern United States, Environmental Concern, Inc. 1993.

1.04 INFORMATIONAL SUBMITTALS

A. If replanting efforts are deemed necessary within the two years after acceptance, submit a seeding and planting report before plant material is shipped to the project site that will contain the applicable components as specified in Sections 32 92 19, Seeding and 32 93 00, Plants.

B. Submit the following Product Data with each plant material delivery:

1. Invoice indicating sizes and variety of plant material.
2. Certificates of inspection required by State and Federal agencies.
3. Labels for each plant or bundles of plants indicating name and size.

PART 2 PRODUCTS

2.01 VEGETATION SPECIES AND SEED MIXTURES

A. As needed to augment mortality or unacceptable plant material, provide plants in accordance with a Species List for each specific restoration area, as specified in Sections 32 93 00, Plants and 32 92 19, Seeding.

B. Source of the materials shall be the same as approved for the original habitat restoration work.

PART 3 EXECUTION

3.01 GENERAL

A. Planting season is as specified in Section 01 10 00, Summary of Work. All exceptions shall be authorized in writing by the Owner's Representative. Actual planting will only occur when weather and soil conditions are suitable for optimal benefit to the plants. No plant material will be planted when the ground is frozen. Water temperatures should be within 5 degrees of where the plant stock was harvested with the river being a minimum of 42-44 degrees Fahrenheit. Planting shall not occur during high flow events and only occur when the river sustains its mean water elevation.

3.02 PERFORMANCE MONITORING AND WARRANTY

A. General:

1. The contractor shall warranty all plant material installed under this Contract for a period of 2 years from the date of final acceptance of the installed plants. Final acceptance of the installed plant material is defined in Section 32 05 33, 3.06 A. At the end of the warranty period, the planting shall meet the coverage requirements stated below. If the stated coverage is not met, the plants shall be replaced in accordance with the specifications, no later

than the following growing season (June-September), at the Contractor's expense.

2. The Contractor shall be responsible for providing no more than the original plants and one replacement plant under the warranty.
3. The contractor can plant at a higher density, at no additional cost to the owner, than that is prescribed in the Specification 32 93 00 Plants, to achieve the warranty requirements of the project.

B. Aquatic Vegetation

1. SAV and EV plants that are healthy (showing sprouting and leaf growth) and properly installed as determined by the Owner's Representative at the time of final inspection will be accepted.
2. For each of the restoration sites, SAV and EV planting acceptance at the end of the 2-year warranty period shall be based on 80% plant coverage.
   a. Annual monitoring shall be conducted by the contractor during the growing season (June – September) for aquatic vegetation species. The monitoring windows shall remain flexible and be subject to adjustment based on seasonal variations in factors affecting the plant communities.
   b. During monitoring, percent cover and species composition at each of the restoration sites shall be measured using a cover abundance evaluation method such as Braun-Blanquet method or approved equal. The proposed method must be coordinated and approved, by the Owner's Representative prior to implementation. Percent cover will identify areas where plant coverage is deficient while plant species composition will assist with identifying species that could be used if replanting is necessary.
   c. Based on the results of this monitoring, as determined by the Owner's Representative, the Contractor, shall undertake the following steps:
      1) In areas where plant cover is less than 80 percent, replant with plant species that are surviving in the Buffalo River environment. The selected species shall be of similar size as originally specified.
      2) In addition to meeting 80 percent plant coverage requirement, each of the restoration areas shall not have bare spots greater than 100 SF. If bare spots greater than 100 SF are observed, replant at the specified density with appropriate plant species surviving in the Buffalo River environment. The selected species shall be of similar size as originally specified.

3.03 CARE OF PLANTINGS

A. Watering shall occur at a minimum frequency of once per week with a minimum of 20L of water supplied to each individual plant in the EV planting areas, unless waived at the approval of the Owner's Representative. Watering will only be re-

quired between May 1 and September 30, and if natural rainfall does not exceed 1 inch in a week.

B. Maintenance responsibilities shall include repairing or replacing geese exclusion fencing for the duration of the maintenance period.

3.04 CLEAN-UP

A. All non-vegetative waste materials shall be disposed of offsite at an approved landfill or recycling center. Excess foliage and vegetation from native vegetation plants shall be grouped and placed inland at a location outside at the top of the bank to be used as habitat for terrestrial wildlife. The site shall be restored to pre-existing conditions to the extent reasonably possible and to the satisfaction of the Owner's Representative.

3.05 FIELD QUALITY CONTROL

A. The work site will be inspected by the Owner's Representative prior to acceptance of work at the end of the 2 year warranty period. A punch list noting deficiencies will be compiled by the Owner's Representative and provided to the Contractor. Perform, repair, adjust, align, or otherwise comply with the specified work on the punch list to the satisfaction of the Owner's Representative. The Contractor shall be responsible for notifying the Owner's Representative at least 2 days prior to the inspection that work will be ready for inspection. Work will not be accepted until all punch list items are resolved and all work meets or exceeds contract requirements. Acceptance of work at the end of the 2 year warranty period will not be provided by the Owner's Representative until all defects or deficiencies are corrected. Acceptance at the end of the 2 year warranty period will occur only after all corrective actions and supplemental viable plantings are complete and the area meets performance standards and all contract requirements.

END OF SECTION

SECTION 32 05 33
COMMON WORK RESULTS FOR PLANTING

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide and place erosion control measures; planting of emergent vegetation (EV) and submerged aquatic vegetation (SAV; and restore the Site as shown and noted on the Drawings, and as specified herein. All fill materials shall be as specified in Section 31 23 23, Fill for Habitat Restoration.

1.02 RELATED SECTIONS

A. Section 01 11 00, Summary of Work.

B. Section 31 11 00, Clearing, and Grubbing.

C. Section 31 23 23, Fill for Habitat Restoration.

D. Section 31 25 00, Erosion and Sedimentation Controls.

E. Section 31 37 00, Rip Rap.

F. Section 32 01 90, Operation and Maintenance of Planting.

G. Section 32 06 90.13, Planting Schedule.

H. Section 32 91 00, Planting Preparation.

I. Section 32 92 19, Seeding.

J. Section 32 93 00, Plants.

1.03 REFERENCES

A. Plant Nomenclature: Conform to the latest edition of “Standardized Plant Names” as adopted by the American Joint Committee of Horticultural Nomenclature.

B. Size and Grading Standards: Conform to the current edition of “American Standard for Nursery Stock” ANSI Z60.1– Sponsor – the American Association of Nurserymen Inc., unless otherwise specified.

C. Planting and Care Standards: Conform to the current edition of “The American National Standard for Tree Care Operations” ANSI A300. Sponsor – International Society of Arboriculture, unless otherwise specified.

D. Thunhorst, Gwendolyn A., Wetland Planting Guide for the Northeastern United States, Environmental Concern, Inc. 1993.

1.04 INFORMATIONAL SUBMITTALS

A. Submit a Seeding and Planting Report with the following components before plant material is shipped to the project site:

1. An itemized list of all plants to be used for the Project including the name and location of each proposed source of plants.
2. Certification from suppliers that all plants to be supplied for use on this project shall meet the requirements of this section.

B. Submit the following Product Data with each plant material delivery:

1. Invoice indicating sizes and variety of plant material.
2. Certificates of inspection required by State and federal agencies.
3. Labels for each plant or bundles of plants indicating name and size.

C. Submit Quality Assurance Submittals prior to commencement of the Work including the following: Worker's Qualification Data.

1.05 ACTION SUBMITTALS

A. Care of Planting Work Schedule.

1.06 QUALITY REQUIREMENTS

A. Worker Qualification Data: Contractor's personnel shall have worked on five (5) similar projects in the past (2) years. Contractor to submit documentation indicating project names and addresses and dates of construction for the five similar projects.

PART 2 PRODUCTS

2.01 WATER

A. Water for irrigation, soaking of plants and cuttings, and dust control shall be the responsibility of the Contractor. Water shall be clean, free of contaminants, and have a turbidity of less than 20 NTU.

2.02 FILL

A. Material specifications that will be used shall meet the requirements specified in Section 31 23 23, Fill for Habitat Restoration.

PART 3 EXECUTION

3.01 GENERAL

A. Verify the locations of underground utilities and other non-movable obstructions prior to commencement of Work. Where non-movable obstructions are encountered, the plant pits shall be relocated, as coordinated with the Owner's Representative.

B. Notify the Owner's Representative at least two (2) full work days before intended delivery of plants or planting materials to the site. Furnish the Owner's Representative with legible copies of the certificates of inspection of plant materials and a copy of the invoice for each shipment showing point of origin, sizes, quantities, and kinds of materials supplied. Plants which fail to meet the specifications will be rejected.

C. All plants shall be properly protected from damage, drying out, and browsing by animals. Such protection shall include the time when the plants are in transit, being handled or in temporary storage. Bare root plants not planted immediately shall be wrapped in untreated heavy burlap fabric. All plants not planted immediately shall be watered as specified by the supplier. Plants shall be planted within 48 hours of delivery.

3.02 TRANSPORTATION OF PLANTS

A. Nursery stock used in the installation of SAV, and EV areas shall not be subjected to cold or excessive heat or drying during transport. The plants shall be carefully unloaded at the staging area and placed in a shaded area. Plants shall be watered and maintained in healthy condition until the time of installation. Damaged, wilted, diseased, or dead nursery stock will not be accepted and shall be immediately replaced by Contractor at no expense to the Owner.

3.03 CARE OF PLANTINGS

A. Care of the plantings shall begin immediately after each plant is placed and shall continue until the final acceptance of the contract. Care of the plantings shall consist of keeping the plants in a healthy growing condition by watering and by other operations as necessary.

B. Submit a plan for approval to minimize browsing damage to EV by animals such as geese, waterfowl and deer. The plan shall include the preferred method (e.g. overhead grid), materials specifications and plans for installation and removal during appropriate seasons. It is recommended the Contractor contact the local NYSDEC biologist for area specific recommendations.

C. Consult with the Owner's Representative regarding initial watering of the newly planted area. The rate of watering will be based on the existing soil moisture conditions and the amount needed to thoroughly moisten the upper 12 inch soil layer. Watering after the second and fourth weeks shall occur if natural rainfall is less than one inch per week. The watering rate will be determined as stated previously. Any rills and furrows created from watering will be repaired and reseeded. Watering will continue at this approved rate until all planting is completed, at which time watering will continue as specified in Section 32 01 90, Operation and Maintenance of Planting.

D. Prepare and submit a Care of Planting Work Schedule to the Owner's Representative after the construction has been completed. The schedule shall identify how and when all Care of Planting will be accomplished. Exceptions to the approved schedule shall be subject to advance written approval of the Owner's Representative.

3.04 RESTORATION FEATURES

A. Coir Logs: Coir logs will be installed in locations where EV beds are to be created or enhanced as shown on the Drawings and as described in Section 31 25 00, Erosion and Sedimentation Controls.

3.05 CLEAN-UP

A. All non-vegetative waste materials shall be disposed of offsite at an approved landfill or recycling center. Excess foliage and vegetation from native vegetation shall be grouped and placed inland at a location outside of a regulated floodplain or wetland near the soil staging area to be used as habitat for terrestrial wildlife. The site shall be restored to preexisting conditions to the extent reasonably possible and to the satisfaction of the Owner's Representative.

3.06 FIELD QUALITY CONTROL

A. The work site will be inspected by the Owner's Representative prior to final acceptance of Work. A punch list noting deficiencies will be compiled by the Owner's Representative and provided to the Contractor. Notify the Owner's Representative at least 2 days prior to the inspection that Work will be ready for inspection. Work will not be accepted until all punch list items are resolved and all Work meets or exceeds contract requirements. Final acceptance of Work will not be provided by the Owner's Representative until all defects or deficiencies are corrected. Final acceptance will occur only after all corrective actions and supplemental viable plantings are complete and the Work meets performance standards and all Contract requirements.

END OF SECTION

SECTION 32 06 90.13
PLANTING SCHEDULE

PART 1 GENERAL

1.01 DESCRIPTION

A. Adhere to the schedule provided in this Section. Modifications to the schedule will only be entertained by the Owner's Representative if submitted in writing with justification. If proposed modification to planting schedule is approved, Owner's Representative will indicate so in writing. This Section provides a planting schedule for planting emergent vegetation (EV) and submerged aquatic vegetation (SAV). Features associated with these plantings include installing restoration features (coir logs, modified LUNKERS, rootwads, anchored woody debris, and rock vanes as shown and noted on the Drawings, and as specified herein.

B. The following summarizes the planting types and associated restoration techniques to be utilized at each site (specific locations of planting areas and restoration features are shown on the Drawings):

Table 1: Restoration Planting and Techniques Utilized for Buffalo River AOC

Restoration Location	SAV	EV	Riparian Type 1	Riparian Type 2	Riparian Type 3	Riparian Type 4	Restoration Feature
Riverbend	X	X	X	X			Anchored Woody Debris, Rock Vanes and Modified LUNKERS
Buffalo Color Peninsula	X	X			X		Soil Choking, Rock Vanes
Katherine Street Peninsula	X	X		X		X	Anchored Woody Debris, Rock Vanes
Ohio Street Shoreline	X	X	X	X			Modified LUNKERS
City Ship Canal	X	X	X	X			Rootwads, Anchored Woody Debris

1.02 RELATED SECTIONS

A. Section 01 11 00, Summary of Work.

B. Section 02 21 00, Surveys.

C. Section 31 11 00, Clearing, and Grubbing.

D. Section 31 23 23, Fill for Habitat Restoration.

E. Section 31 25 00, Erosion and Sedimentation Controls.

F. Section 31 37 00, Rip Rap.

G. Section 32 01 90, Operation and Maintenance of Planting.

H. Section 32 05 33, Common Work Results for Planting.

I. Section 32 91 00, Planting Preparation.

J. Section 32 93 00, Plants.

1.03 REFERENCES

A. Plant Nomenclature: Conform to the latest edition of "Standardized Plant Names" as adopted by the American Joint Committee of Horticultural Nomenclature.

B. Size and Grading Standards: Conform to the current edition of "American Standard for Nursery Stock" – Sponsor – the American Association of Nurserymen Inc., unless otherwise specified.

C. Planting and Care Standards: Conform to the current edition of "The American National Standard for Tree Care Operations" ANSI A300. Sponsor – International Society of Arboriculture, unless otherwise specified.

D. Thunhorst, Gwendolyn A., Wetland Planting Guide for the Northeastern United States, Environmental Concern, Inc. 1993.

PART 2 PRODUCTS –NOT USED

PART 3 EXECUTION

3.01 GENERAL

A. Planting season is as specified in Section 01 10 00, Summary of Work. All exceptions must be authorized in writing by the Owner's Representative. Actual planting will only occur when weather and soil conditions are suitable for optimal benefit to plant.

B. Layout and stake the locations for the SAV and EV plants and outline the areas that will be planted on the ground prior to digging any plant pits or placing any planting soil (SAV or EV). The Owner's Representative will then verify and approve of the planting locations prior to plants being installed.

C. Place all rock vanes (Section, 31 37 00), fill (Section, 31 23 23), anchored wood and rootwads, prior to the installation of any plant material.

3.02 PLANTING SCHEDULE FOR SUBMERGED AQUATIC VEGETATION

A. For planting areas indicated to receive fill, common in-water fill shall have been placed one season prior to planting. At the start of the in-water planting season provide a bathymetric survey performed during the spring season to verify that the contours are within six (6) inches of the specified final contours shown on the Drawings. Provide the survey results to the Owner's Representative. Then add common in-water fill to achieve six (6) inches less than the specified contours on the Drawings. The in-water planting season is specified as other than the fish spawning season (see Section 01 10 00, Summary of Work). After placing the common in-water fill, conduct a bathymetric survey to verify that the contours are within six (6) inches of the specified final contours shown on the Drawings.

B. Prior to start of planting in the in-water planting season (in-water planting season is specified as other than the fish spawning season in Section 01 10 00, Summary of Work), conduct a bathymetric survey to verify that the contours are within six (6) inches of the specified final contours shown on the Drawings. Provide the survey results to the Owner's Representative. Based on the survey results, add common in-water fill, as necessary, to achieve six (6) inches less than the specified contours on the Drawings.

C. Following the placement of the common in-water fill to achieve the specified contours, place the Select Fill SAV Planting Soil, as specified in Sections 31 23 23, Fill for Habitat Restoration and 32 91 00, Planting Preparation.

D. After these activities have been completed to the satisfaction of the Owner's Representative, plant the SAV as specified.

3.03 PLANTING SCHEDULE FOR EMERGENT VEGETATION

A. For planting areas indicated to receive fill, common in-water fill shall have been placed one season prior to planting. At the start of the in-water planting season provide a bathymetric survey performed during the spring season to verify that the contours are within six (6) inches of the specified final contours shown on the Drawings. Provide the survey results to the Owner's Representative. Then add common in-water fill to achieve six (6) inches less than the specified contours on the Drawings. The in-water planting season is specified as other than the fish spawning season (see Section 01 10 00, Summary of Work). After placing the common in-water fill, conduct a bathymetric survey to verify that the contours are within six (6) inches of the specified final contours shown on the Drawings.

B. Then place the coir logs, as specified in Section 31 25 00, Erosion and Sedimentation Controls, followed by the EV Planting Soil, as specified in Sections 31 23 23, Fill for Habitat Restoration and 32 91 00, Planting Preparation.

C. After these activities have been completed to the satisfaction of the Owner's Representative, plant the SAV as specified.

3.04 SCHEDULE FOR SAV ASSOCIATED WITH MODIFIED LUNKERS

A. A coir fabric (Section 31 25 00, Erosion and Sedimentation Controls) filled with SAV Planting Soil and planted with SAV shall be installed in the box after construction of the LUNKERS and attachment to the existing sheet pile walls.

3.05 FIELD QUALITY CONTROL

A. On a daily basis during planting, schedule and attend an inspection of areas planted during the previous work day with the Owner's Representative. Within 5 days replace missing planting units, planting units damaged during installation, or planting units that do not appear in good health, to the satisfaction of the Owner's Representative.

END OF SECTION

SECTION 32 91 00
PLANTING PREPARATION

GENERAL

1.01 DESCRIPTION

A. This section provides the requirements for preparation of the planting areas and the planting pits where shown and noted on the Drawings.

1.02 RELATED SECTIONS

A. Section 01 11 00, Summary of Work.

B. Section 31 11 00, Clearing, and Grubbing.

C. Section 31 23 23, Fill for Habitat Restoration.

D. Section 31 25 00, Erosion and Sedimentation Controls.

E. Section 31 37 00, Rip Rap.

F. Section 32 00 90, Operation and Maintenance of Planting.

G. Section 32 05 33, Common Work Results for Planting.

H. Section 32 06 90.13, Planting Schedule.

I. Section 32 92 19, Seeding.

J. Section 32 93 00, Plants.

1.03 REFERENCES

A. Plant Nomenclature: Conform to the latest edition of “Standardized Plant Names” as adopted by the American Joint Committee of Horticultural Nomenclature

B. Size and Grading Standards: Conform to the current edition of “American Standard for Nursery Stock” – Sponsor – the American Association of Nurserymen Inc., unless otherwise specified.

C. Planting and Care Standards: Conform to the current edition of “The American National Standard for Tree Care Operations” ANSI A300. Sponsor – International Society of Arboriculture, unless otherwise specified.

PART 2 PRODUCTS

2.01 FILL

A. Common In-Water fill material and select fill (SAV and EV) shall meet the requirements specified in Section 31 23 23, Fill for Habitat Restoration.

PART 3 EXECUTION

3.01 GROUND PREPARATION FOR ALL PLANTINGS

A. Where an impervious layer of soil is encountered during the excavation of plant pits or beds, all such soil shall be removed to a depth as approved by the Owner's Representative and the pits or beds shall be filled with acceptable planting soil.

B. Any rock, construction debris, or other undesirable material greater than 3 inches encountered while digging planting pits shall be removed to a depth and width necessary to obtain the specified plant pit diameter and depth, or the pit or bed may be relocated as coordinated with the Owner's Representative.

C. Planting soil shall be soil excavated from the plant pit that has been previously amended with compost at the specified rates identified in Section 31 23 23, Fill for Habitat Restoration, unless SAV, or EV select fill exists at the ground surface.

D. As many existing timber pilings (upright or leaning) as practical will be retained.

3.02 GROUND PREPARATION FOR SAV AND EV PLANTINGS

A. Plants in SAV and EV beds shall be planted in individual plant pits (minimum 3-inches deep) after the placement of the appropriate Select Fill planting soil (SAV and EV) and common in-water fill as specified in Section 31 23 23, Fill for Habitat Restoration. Existing vegetation shall remain in place in EV and SAV beds where fill has not been placed.

B. A six (6) inch layer of Select Fill EV Planting Soil shall be placed upslope of the coir logs (Section 32 05 33, Common Work Results for Planting) from an elevation of 569 feet to an elevation of 571 feet (at final grade). These elevations will allow sufficient water depths for EV to become established and to discourage invasive establishment.

C. A six (6) inch layer of Select Fill SAV Planting Soil shall be placed in the areas of SAV planting after placement of the rock vanes (Section 31 37 00, Rip Rap) from an elevation of 563 feet to an elevation of 569 feet (at final grade). These elevations will allow sufficient water depths for SAV to become established.

D. Planting pits for SAV and EV plugs shall minimize overall soil disturbance of the imported 6 inches of planting soil, but shall be at least as deep as all root material associated with the plugs.

3.03 SETTING OF SUBMERGED AQUATIC VEGETATION

A. Prior to setting SAV plants, six (6) inches of Select Fill SAV Planting Soil (Section 31 23 23, Fill for Habitat Restoration) shall be placed in the designated areas.

B. Plant species from Submerged Aquatic Vegetation Plant Schedule (Section 32 93 00, Plants, Table 2) at two (2) feet on center with one (1) plant placed every four (4) square feet (ft^2). SAV plant material shall be provided as plugs.

C. Plant holes shall be excavated deep enough (minimum 3-inches deep) to allow sufficient depth for plant root masses and rhizomes to extend fully.

D. SAV plants shall be planted with a U-shaped pin anchor tied to the plant with twine rope. U-shaped anchor pins will be a minimum of 11-guage steel wire and have final dimensions of 1-inch wide by 6-inches long. Twine ropes shall be biodegradable and tied firmly to the plant, but shall not damage the plant. The anchor pin shall be pushed firmly into the substrate below the excavated planting hole. The hole shall be backfilled with SAV Planting Soil and tamped in place such that the basal area of the plant is at the soil surface.

E. The required planting area shown on the Drawings and the density indicated above shall be used to determine the quantity of Planting Units to be installed within each Planting Area. The Planting Units shall be installed at an approximate uniform spacing throughout the Planting Area. Planting Units installed beyond the boundaries of the Planting Area do not count towards the required planting densities and quantities, and may be subject to removal.

F. Immediately notify the Owner's Representative if conditions that prevent the installation of Planting Units are encountered within the identified Planting Areas. If adjustments to the Planting Area boundaries are necessary, the Owner's Representative will issue revised Planting Area boundaries.

G. Alternative spacing arrangements, layout, and transplanting techniques may be submitted in writing to the Owner's Representative for review and approval. At a minimum, any alternative methods must provide for uniform coverage of the Planting Area, and adherence to water depth and plant embedment requirements.

H. Any diving proposed shall be conducted by certified commercial divers and in accordance with OSHA Commercial Diving Regulations. The Contractor is responsible for obtaining appropriate insurances for any diving operations. Documentation of diver certification shall be provided to the Owner's Representative 30 days in advance of diving operations.

I. All vessel operations shall be in accordance with the NYSCC Regulations.

3.04 SETTING OF EMERGENT VEGETATION

A. EV plantings shall be planted uphill of the coir logs to a ground surface elevation of 571 feet.

B. Prior to setting EV plants, six (6) inches of Select Fill EV Planting Soil (Section 31 23 23, Fill for Habitat Restoration) shall be placed in designated area.

C. Plant species from the Emergent Aquatic Vegetation Plant Schedule (Section 32 93 00, Plants, Table 1) at an interval of two (2) feet on center with one (1) plant placed every four (4) square feet. Plants shall be planted in a random pattern that avoids straight lines or rows.

D. Plant holes shall be excavated deep enough (minimum 3-inches deep) to allow sufficient depth for plant root masses and rhizomes to extend fully.

E. EV plants shall be planted with a U-shaped pin anchor tied to the plant with twine rope. U-shaped anchor pins will be a minimum of 11-guage steel wire and have final dimensions of 1-inch wide by 6-inches long. Twine ropes shall be biodegradable and tied firmly to the plant, but shall not damage the plant. The anchor pin shall be pushed firmly into the substrate below the excavated planting hole. The hole shall be backfilled with EV Planting Soil and tamped in place such that the basal area of the plant is at the soil surface

F. The required planting area shown on the Drawings and the density indicated above shall be used to determine the quantity of Planting Units to be installed within each Planting Area. The Planting Units shall be installed at an approximate uniform spacing throughout the Planting Area. Planting Units installed beyond the boundaries of the Planting Area do not count towards the required planting densities and quantities, and may be subject to removal.

G. Immediately notify the Owner's Representative if conditions that prevent the installation of Planting Units are encountered within the identified Planting Areas. If adjustments to the Planting Area boundaries are necessary, the Owner's Representative will issue revised Planting Area boundaries.

H. Alternative spacing arrangements, layout, and transplanting techniques may be submitted in writing to the Owner's Representative for review and approval. At a minimum, any alternative methods must provide for uniform coverage of the Planting Area, and adherence to water depth and plant embedment requirements.

3.05 SETTING OF SUBMERGED AQUATIC VEGETATION IN LUNKERS BOXES

A. After Modified LUNKERS box is securely fixed to the sheet pile wall, place a SAV Planting Soil for a total thickness of 1 foot and completely surround it with coir fabric.

B. Plant species from Submerged Aquatic Vegetation Plant Schedule (Section 32 93 00, Plants) at two (2) feet on center with one (1) plant placed every four (4) square feet (ft^2).

C. SAV plant material shall be provided as plugs.

D. Plant into the SAV Planting Soil, through the coir fabric, cutting holes while minimizing disturbance of the coir fabric material.

E. SAV Planting Soil will conform to specifications in Section 31 23 23, Fill for Habitat Restoration and coir fabric material will conform to specifications in Section 31 25 00, Erosion and Sedimentation Controls.

3.06 FIELD QUALITY CONTROL

A. Site preparation work will be inspected by the Owner's Representative prior to setting plants. The contractor shall notify the Owner's Representative in writing at least 2 days prior to the inspection that work will be ready for inspection. The Owner's Representative will note deficiencies in writing and communicate these to the Contractor. Work will not be accepted until all noted deficiencies are resolved and all work meets or exceeds contract requirements. Do not install plants in a planting area until final acceptance of Planting Preparation work by the Owner's Representative.

B. On a daily basis during planting schedule, attend an inspection of the area planted during the previous work day with the Owner's Representative. The daily inspections will be documented and will contain documentation of the work performed, deficiencies noted, issues resolved and how these issues were resolved and all other aspects of the daily inspection. These documents will be submitted by the Owner's Representative to the owner to document the processes at the site. Promptly replace missing Planting Units and Planting Units damaged during installation.

END OF SECTION

SECTION 32 92 19
SEEDING

PART 1 GENERAL

1.01 DESCRIPTION

A. This section provides the appropriate seed mixes to be applied at the appropriate locations in conjunction with the relevant schedule items (erosion control measures).

1.02 RELATED SECTIONS

A. Section 01 11 00, Summary of Work.

B. Section 31 11 00, Clearing and Grubbing.

C. Section 31 23 23, Fill for Habitat Restoration.

D. Section 31 25 00, Erosion and Sedimentation Controls.

E. Section 32 01 90, Operation and Maintenance of Planting.

F. Section 32 05 33, Common Work Results for Planting.

G. Section 32 06 90.13, Planting Schedule.

H. Section 32 91 00, Planting Preparation.

I. Section 32 93 00, Plants.

1.03 REFERENCES

A. Plant Nomenclature: Conform to the latest edition of “Standardized Plant Names” as adopted by the American Joint Committee of Horticultural Nomenclature.

PART 2 PRODUCTS

2.01 SEED MIXTURES

A. Provide seed mixes in accordance with the tables below for each type of seed mix. Seed mix will be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Invasive vegetation species shall not be allowed.

B. Provide seed mixes that are fresh, clean, and of the current season's crop. The seed mixes shall be delivered in unopened containers.

C. Seed mixes for each mix type shall be as follow in Tables 1 and 2 and shall be applied at rates specified in Table 3.

Table 1: Seed Mix – Erosion Control

	Percentage of Seed Mix
Annual Rye	50%
Oats	50%

Table 2: Seed Mix – Native Grasses

	Percentage of Seed Mix
Elymus virginicus Virginia Wild Rye, PA Ecotype	20%
Carex vulpinoidea, Fox Sedge, PA Ecotype	20%
Panicum clandestinum (Dichanthelium c.) Deer Tongue, 'Tioga'	14%
Sorghastrum nutans, 'Southlow'-MI Ecotype Indiangrass	10%
Andropogon gerardii, 'Niagara' Big Bluestem	10%
Panicum virgatum, Switchgrass, 'Cave-In-Rock'	5%
Carex crinita Fringed (Nodding) Sedge, PA Ecotype	4%
Helenium autumnale, Common Sneezeweed, PA Ecotype	3%
PART 1 - Verbena hastata, Blue Vervain, PA Ecotype	3%
Heliopsis helianthoides, Oxeye Sunflower, PA Ecotype	2%
Eupatorium perfoliatum, Boneset, PA Ecotype	2%
Aster puniceus (Symphyotrichum puniceum),	1%
Purplestem Aster, PA Ecotype	1%
PART 2 - Asclepias incarnata, Swamp milkweed, PA Ecotype	1%
Ludwigia alternifolia, Seedbox, PA Ecotype	1%
Lobelia siphilitica, Great Blue Lobelia, PA Ecotype	1%
Monarda punctata, Spotted Beeblam, Coastal Plain SC Ecotype	1%
Euthamia graminifolia (Solidago g.), Grassleaf Goldenrod, PA Ecotype	1%

Table 3: Specified Application Rate

Seed Mix	Average Rate
Erosion Control	6 lbs/1000sf
Native Grass	1.5 lbs/1000sf

PART 3 EXECUTION

3.01 GENERAL

A. Erosion Control seed mix shall be installed in conjunction with erosion control methods specified in Section 31 25 00, Erosion and Sedimentation Controls.

B. Erosion Control seed mix shall be spread by Hydroseed, providing that a pre-germinated hydroseed mix is used. Notify the Owner's Representative at least two (2) full work days before intended delivery of seed mixes to the site. Furnish, to the Owner's Representative, legible copies of the certificates of inspection of seed mixes and a copy of the invoice for each shipment showing point of origin, species composition, percentages of each species, and kinds of materials supplied. Seed mixes which fail to meet the specifications will be rejected.

C. Temporary storage of seed mix will be in a dry secured area with all labels in place.

3.02 PERFORMING SEEDING

A. When hydraulic application is used, the minimum rate of water of 500 gallons per acre shall be used.

B. Lightly rake or drag the entire seeded area after sowing the seed.

3.03 FIELD QUALITY CONTROL

A. The work site will be inspected by the Owner's Representative prior to final acceptance of work. The contractor shall notify the Owner's Representative in writing at least two (2) days prior to the inspection that work will be ready for inspection. A punch list noting deficiencies in the seeding will be compiled by the Owner's Representative in writing and provided to the Contractor. Final acceptance of work will not be provided by the Owner's Representative until all defects or deficiencies are corrected and the seeding work meets performance standards and all contract requirements.

END OF SECTION

SECTION 32 93 00
PLANTS

PART 1 GENERAL

1.01 DESCRIPTION

A. This section provides the requirements for the plants to be provided. These plants would be classified as “acceptable plant material” for this project. Plant installation procedures and requirements are identified in Section 32 05 33, Common Work Results for Planting.

1.02 RELATED SECTIONS

A. Section 31 11 00, Clearing, and Grubbing.

B. Section 31 23 00, Erosion and Sedimentation Controls.

C. Section 32 05 33, Common Work Results for Planting.

D. Section 32 01 90, Operation and Maintenance of Planting.

E. Section 32 06 90.13, Planting Schedule.

F. Section 32 91 00, Planting Preparation.

G. Section 32 92 19, Seeding.

1.03 REFERENCES

A. Plant Nomenclature: Conform to the latest edition of “Standardized Plant Names” as adopted by the American Joint Committee of Horticultural Nomenclature.

B. Size and Grading Standards: Conform to the current edition of “American Standard for Nursery Stock” ANSI Z60.1-2004 – Sponsor – the American Association of Nurserymen Inc., unless otherwise specified.

C. Planting and Care Standards: Conform to the current edition of “The American National Standard for Tree Care Operations” ANSI A300. Sponsor – International Society of Arboriculture, unless otherwise specified.

D. Thunhorst, Gwendolyn A., Wetland Planting Guide for the Northeastern United States, Environmental Concern, Inc. 1993.

PART 2 PRODUCTS

2.01 VEGETATION SPECIES

A. Provide plants in accordance with the Species List below for each specific restoration area. Invasive vegetation species shall not be allowed. Materials must be healthy and vigorous, free of disease, insects, eggs, larvae, and defects such as decay, rot, knots, sun scald, injuries, abrasion, and poor or unusual form. All substitutions to the species list provided below must be approved by the Owner's Representative prior to placing the plant order. Quantity required for planting could potentially impact the project schedule and shall be planned ahead of time.

B. For SAV and EV plants, the species shall be used in proportions indicated in Tables 1 and 2.

Table 1: Emergent Vegetation Schedule
use all species in proportions indicated

Carex stricta - tussock sedge - 25%
Juncus effusus – soft rush - 10%
Justicia americana- American Waterwillow - 25%
Polygonum hydropiperiodes- Swamp smartweed - 15%
Schoenoplectus fluvitalis - River bulrush - 25%

Table 2: Submerged Aquatic Vegetation Schedule -
use all species in proportions indicated

Polygonium amphibium – Water Smartweed - 20%
Vallisneria americana- Wild celery -50%
Potamogeton nodosus- American Pondweed -10%
Schoenoplectus subterminalis- Water bulrush - 20%

Table 3: Average Densities For Planting Types

Planting Feature	Average Density	Spacing[1]
Submerged Aquatic Vegetation	1 per 4 SF	2 feet on Center
Emergent Vegetation	1 per 4 SF	2 feet on Center

[1] Final spacing and species selection will be determined by specific bank location relative to the water surface elevation and surface conditions (slope, aspect, etc.). Densities may be modified at the discretion of the Owner's Representative, but overall plant numbers will be based on these spacing values. All planting feature density estimates are independent of each other.

[2] SF = square feet.

PART 3 EXECUTION

3.01 GENERAL

A. Notify the Owner's Representative at least two (2) full weeks prior to delivery of planting material if any substitutions are proposed. The Owner's Representative will then respond within three (3) full work days whether or not the plant substitutions will be accepted. If not accepted, the Contractor is responsible for locating plant species that are acceptable to the Owner's Representative.

END OF SECTION

SECTION 35 20 23.13
ENVIRONMENTAL DREDGING

PART 1 GENERAL

1.01 DESCRIPTION

A. Summary: This section covers the requirements of the mechanical dredging, transportation of dredged materials, debris handling, and offloading at the CDF.

1.02 DEFINITIONS

A. Critical Structures: Structures in the Work area selected for special treatment during dredging, including warehouses, grain elevators, transmission towers, and piers supporting bridges.

B. Dredge Management Units (DMU): An individual area to be dredged. DMUs were developed through the sediment investigation, feasibility study, and design process and dredging has been eliminated from a few DMUs. All DMUs are shown on the Drawings.

C. Debris: As defined in Section 01 10 00, Summary of Work.

D. Leaf Mats: Deposits of consolidated leaves and similar vegetation that are present within materials to be dredged and which can present a hindrance to hydraulic offloading at the CDF.

E. Non-critical Structures: Engineered bulkheads and other structures in the Work area located adjacent to DMUs not identified as Critical Structures.

F. Non-TSCA-level Sediment: As defined in Section 01 10 00, Summary of Work.

G. Shoreline Vegetation: Shoreline Vegetation includes branches, limbs, trees, and vegetation that would otherwise prevent the dredge from accessing sediment along the shoreline of the river.

H. TSCA-level Sediment: As defined in Section 01 10 00, Summary of Work.

1.03 RELATED SECTIONS

A. Section 01 10 00, Summary of Work.

B. Section 01 11 01, Health, Safety, and Emergency Response.

C. Section 01 29 00, Payment Procedures.

D. Section 01 35 91, Protection of Historic Artifacts.

E. Section 01 40 00, Contractor Quality Control.

F. Section 01 57 19, Environmental Controls.

G. Section 01 57 20 Environmental Protection.

H. Section 01 57 23, Storm Water Pollution Control.

I. Section 01 72 20, Decontamination.

J. Section 01 74 00, Construction and Demolition Waste Management and Disposal.

K. Section 02 21 00, Surveys

L. Section 02 24 23, Chemical Sampling and Analysis of Soils and Sediment.

1.04 SUBMITTALS

A. Action Submittals:

1. Dredging and Operations Plan: Contractor shall submit for approval a Dredging and Operations plan. In general, the plan must include details of the dredging plant the Contractor intends to use on each bid item and/or phase of Work, and a schedule indicating start and completion dates for each dredging section. The Contractor's Dredging and Operations plan shall include, but is not limited to, the following:
   a. A description and list of operations that will be performed in connection with the removal and transportation of uncontaminated and contaminated material, including identification of specific plant for each task.
   b. A description of plant (including names of dredges) and equipment that will be utilized in the removal, transport, and offloading of material, with pertinent details for each piece of equipment (dimensions, horsepower, bucket size and type, crew, etc.).
   c. Dredging rates for each plant including proposed average cycle times and hours of operation.
   d. A description of the proposed dredging strategy/sequence including drawings showing the width, length, and location of the dredge lanes and target elevations in each lane.
   e. Proposed cut or bite height relative to sediment thickness.
   f. Proposed method for dredging in shallow draft areas, in areas of low overhead clearance, and near bulkheads, bridge abutments, and other critical structures.
   g. Dredge barge movement procedure and frequency.
   h. Proposed method for sediment transport and barge tie-up.

i. Description of hydraulic offloading process at CDF.
j. Description of process for handling and disposing debris, leaf mats, and other items that could impact hydraulic offloading of sediment at the CDF.
k. Proposed staging areas for debris, TSCA-level sediment processing, and equipment storage.
l. Information on the horizontal and vertical positioning systems for plants and equipment to be utilized.
m. Means to control and accurately document position of dredge and prevent over-dredging.
n. Means to minimize effect of wind and waves on dredging precision.
o. Means to be employed to minimize resuspension of sediment during dredge plant relocation and barge transport to the CDF.
p. Number, relative location, and design details of turbidity curtains deployed to control sediment resuspended during dredging activities.
q. Means to maintain and inspect turbidity curtains.
r. Means to remove debris and shoreline vegetation.
s. Proposed approach for deployment of equipment including mobilization of dredges and barges and other ancillary equipment to the Project Site and daily deployment of personnel and vessels.
t. A detailed schedule of Work as specified in Division 01 Construction Progress Documentation.
u. Management approach
v. Communication Plan.

2. Spill Prevention and Control Plan.
3. Contractor's HSERP (see Section 01 11 01, Health, Safety, and Emergency Response).
4. Contingency Plan: The Contractor shall develop and submit a Contingency Plan. The plan shall include procedures and contingency actions associated with the following:
   a. Non compliance of applicable turbidity criteria during dredging operations.
   b. Floods, heavy rainfall, and storm surge events.
   c. Failure of sediment controls.
5. Contractor's Quality Control Plan: As specified in Section 01 40 00, Contractor Quality Control
6. Permits and Notices:
   a. Copies of permits necessary to complete the Work.
   b. Copies of notices necessary to complete the Work.
7. Shop Drawings:
   a. Plans: Staging area plans depicting the dimensions, location, and purpose of each area, including air monitoring locations as specified in the CAMP.
   b. Equipment: Dredge equipment and platform/structure drawings, as applicable.

c. Operational Data: Soundings and sweepings taken before, during and after dredging operations, both plan view bathymetry maps and cross sections.

8. Design Data: Electronic Tracking System Data: Required discs, CD-ROM, and charts to Owner's Representative.
9. Environmental Management Plan: As specified in Section 01 57 19, Environmental Controls.
10. Silt Curtain Shop Drawings: As specified in Section 01 57 19, Environmental Controls.

B. Informational Submittals

1. Equipment and Performance Data: Proof of electronic positioning equipment calibration to Owner's Representative.
2. Daily Report of Operations: Two copies of the Daily Report of Operations for each operating dredge. Report shall be submitted by noon the following day. The Daily Report shall include, but not be limited to, number and types of equipment used, numbers of labor classifications and hours worked of personnel, unusual incidents or occurrences, difficulties encountered, weather conditions, operating hours, downtime and causes, and quantities dredged. Figures, drawings, and records from the machine control system shall be provided that document the areas covered, depths dredged, and volumes excavated. Additionally, one copy of these shall be maintained by Contractor on the dredge(s). Further instructions on the preparation of the reports will be furnished at the Pre-construction Conference.
3. Bucket positioning data: collected and maintained throughout the project and submitted to Owner and Owner's Representative on a weekly basis.
4. Locations of hard till or other obstructions encountered during dredging: submitted at the conclusion of the dredging portion of the project.

1.05 ARTIFICIAL OBSTRUCTIONS

A. Excluding known utilities and physical structures identified herein and on the Drawings, and except as otherwise indicated, neither the Owner nor Owner's Representative has knowledge of cables, pipes, or other artificial obstructions or of any wrecks, wreckage, or other material that would necessitate the use of explosives or the employment of additional equipment for economical removal.

1.06 QUANTITY OF MATERIAL

A. The total estimated amount of material to be removed from within the specified DMU limits is 488,000 cubic yards of non-TSCA-level sediment and 4,200 cubic yards of TSCA-level sediment. The estimated average thickness of contaminated material to be removed is about 3 feet. The quantities listed are estimates only.

1.07 REQUIREMENT TO MEET DESIGN ELEVATIONS

A. Non-TSCA-level sediment: Contractor shall conduct dredging operations until a post-dredge bathymetric survey indicates target dredge elevations have been achieved for a minimum of 90 percent of the dredge footprint for a DMU, and no elevation is more than 6 inches above the target elevation.

B. TSCA-level sediment: Contractor shall conduct dredging operations until a post-dredge bathymetric survey indicates target dredge elevations have been achieved over the entire dredge footprint. This applies for both dredging of TSCA-level sediment based on the elevations indicated in the Drawings, and for any additional dredging of TSCA-level sediment required based on confirmation sampling following completion of the initial dredging.

1.08 ALLOWABLE AND PAYABLE OVERDEPTH DREDGING

A. Contractor will be compensated for dredging of material down to elevations six inches below target elevations shown on the Drawings. Contractor will not be compensated for material dredged beneath this elevation unless the Contractor receives direction in writing from the Owner's Representative to do so.

1.09 PERMIT

A. The Contractor shall comply with conditions and requirements of the US Army Corps of Engineers Permit and other State or Federal permits that may apply. The responsibility for securing various permits for the Project is defined in Section 01 57 19, Environmental Controls, 3.01 C.

1.10 ENVIRONMENTAL PROTECTION REQUIREMENTS

A. As stated in Section 01 57 19, Environmental Controls, Section 01 57 20 Environmental Protection and Section 01 57 23, Storm Water Pollution Control.

1.11 BASIS FOR BIDS

A. Payment will be at the contract unit price per cubic yard, multiplied by total cubic yards of acceptable dredging. Base bids on total cubic yards of dredging, as specified in Section 01 29 00, Payment Procedures. Include a bid unit price per cubic yard of dredging based on the quantity as specified or indicated. If the Owner's Representative requires an increase or a decrease in total volume of dredging, the contract price will be adjusted based on the unit price per cubic yard.

PART 2 PRODUCTS

2.01 DREDGE PLATFORM AND ASSOCIATED EQUIPMENT

A. Performance Requirements: Provide dredge platforms to complete the dredging and achieve the desired average production rate of 3,000 to 4,000 CY per day.

B. Production Rate: The dredge production/unloading rate for removal and disposal of the dredge material shall be capable of meeting the overall schedule of Project completion within two seasons (including Base Work, Option 2 Work, and Option 4 Work). The total combined production goal with operating dredging platforms shall be 3,000 to 4,000 CY/day unless a reduced production rate is required due to:

1. Limits designed to keep water quality concentrations in the CDF within acceptable levels. Dredge DMUs 8, 9, and 10 first to take advantage of the available dilution water in the CDF. Concentrations in three DMUs require limited maximum production rates: DMU 6 (163 cy/day), 16 (595 cy/day), and 17 (5,083 cy/day);
2. Dredging in an area in which the average cut depth is shallow and will require more time to dredge; or
3. Dredging in an area which requires the use of silt curtains (as indicated in paragraph 2.04 Silt Curtains) which may lower average production rates due to additional downtime as curtains are rearranged.

C. Environmental Clamshell Bucket: Provide an environmental clamshell bucket to perform dredging of contaminated sediments having the following capabilities and characteristics:

1. Provides a level cut during the closing cycle.
2. Completely encloses the dredged sediment and water captured.
3. Fitted with escape valves or vents that close when the bucket is withdrawn from the water.
4. Smooth cut surface with no teeth.
5. Operator controlled using a global positioning system (GPS) and integrated software.

D. Positioning System: Use software capable of monitoring the x, y, and z position of the bucket in real time. The software will be required to provide the following:

1. A real time view of the barge and clamshell bucket position.
2. A display indicating the surface derived from existing hydrographic survey data.
3. A display which provides real time feedback showing current depth, final project depth, target depth, and current bucket depth.
4. Bucket positioning data.

E. Horizontal and Vertical Tolerances: Bucket positioning shall meet the following tolerances:

1. Horizontal position accuracy shall be plus or minus 1.0 feet.
2. Vertical tolerance shall be plus zero, minus 0.5 feet.

F. The software shall be capable of recording sensor information so that playback/review of past dredge activities is possible. Contractor must verify its error budget (i.e., quality control check of sensors one time per day) and include it in the daily QA/QC report.

G. Anchoring: Use of spud anchors are acceptable for the dredge or barge equipment as long as their use does not result in noncompliance of the water quality criteria or damage utilities or capped areas. Contractor shall avoid driving contamination deeper into the underlying sediments by using spuds.

H. If requested by Owner or Owner's Representative, submit proposal for alternative means of mechanical dredging if conditions dictate.

I. Debris Removal: Provide equipment, as determined by the Contractor, such as a standard clamshell bucket with teeth or grapple for removal of large debris. Cutoff of large debris at or below target dredge elevation is an acceptable alternative to complete removal.

J. Coarse Sediment Removal: A standard clam shell bucket shall be available for removal of sediment that cannot be efficiently removed by the environmental clam shell buckets, as needed. Areas for removal via this method shall be approved by the Owner's Representative prior to proceeding with dredging operations.

2.02 TOW BOATS AND SELF PROPELLED BARGES

A. Specify number and size of tow boats and self propelled barges to be used in Dredging and Operations Plan. Tow boats and self propelled barges utilized by Contractor for this purpose shall be of a size adequate for pushing the anticipated load and shall have necessary reserve power for maneuvering with material barges under emergency conditions as well as for control of material barges at the offloading or disposal point. Contractor shall strive to maneuver equipment in such a way as to minimize impact to existing sediments or to create turbidity, except in emergency situations.

2.03 MATERIAL BARGES

A. Provide material barges capable of transporting dredged material to the CDF for unloading.

B. Provide and maintain markings on material barges clearly indicating the draft of the barge. Each barge shall be used with an ullage table (i.e., displacement table) to provide required information regarding tonnage located in/on the barge.

C. Load barge evenly to maintain the stability of the barge. During loading operations, measure and record on the daily progress report the tonnage of each barge upon departure from the dredge area and upon arrival at the unloading/disposal area.

D. During the entire period of Work, provide and maintain sufficient spot or floodlights to permit the reading of the draft on the sides of material barges at bow and stern from the tow boat at night and when visibility is impaired. Ensure that adequate time is allowed by the tow boat captain for these readings to be obtained. These tonnage report logs shall be part of the Daily Report of Operations.

E. Anchor material barges to existing structures only with written permission of owner of structures.

2.04 SILT CURTAINS

A. Provide and install silt curtains as specified in Section 01 57 19, Environmental Controls.

B. Contractor shall maintain the silt curtain/boom systems and associated markings/lighting in good and effective operating condition by performing daily inspections to determine condition and effectiveness, by repairing resuspension control materials, and by other protective measures.

C. Silt curtains will be required in the DMUs listed below and shall meet the following requirements:

1. Silt curtain shall be installed within 80 meters of the dredge platform on the upstream and downstream side.
2. Silt curtains shall be long enough to cover at least half the depth of the water column. In no case shall silt curtains be allowed to contact or drag on the bottom.
3. Silt curtains shall be deployed to span at least half the width of the river.

DMUs requiring silt curtains

DMU
6
8
9
10

DMU
16
17
37
41
44

2.05 LIGHTS

A. All operations performed during the non-daylight hours shall be properly illuminated to allow for the safe operation, completion of performance, and inspection of the Work.

B. Lighting shall consist of providing, installing, operating, maintaining, moving, and removing portable light towers and equipment-mounted lighting fixtures for nighttime construction operations for the duration of nighttime work.

C. Each Work night, 30 minutes before sunset and 30 minutes after sunrise and during periods of restricted visibility, provide lights for floating plants, ranges, and markers. Also, provide lights for buoys that could endanger or obstruct navigation.

D. Lights shall be provided for installed equipment being used to perform Work even when not in use.

2.06 COMMUNICATION

A. Contractor shall provide a system of continuous communication between the dredge crew and personnel performing sampling or monitoring.

B. Contractor shall provide a system of continuous communication between the dredge crew and the crew at the CDF.

C. Radio telephone equipment shall be capable of transmitting and receiving on VHF Channels.

D. Contractor shall provide Owner’s Representative with three (3) hand-held VHF radios capable of communicating with the Contractor's marine plant for the duration of the work. Should a unit provided to the Owner’s Representative cease to function, Contractor shall repair or replace it within 72 hours.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect the work, keep records of work performed, and ensure that gauges, targets, ranges, and other markers are in place and usable for the intended purpose. Furnish, at the request of the Owner's Representative, boats, boatmen, laborers, and materials necessary for inspecting, supervising, and surveying the work. When required, provide transportation for the Owner's Representative and Owner and inspectors to and from the disposal area and between the dredging plant and adjacent points on shore.

3.02 CONDUCT OF DREDGING WORK

A. Order of Work: Contractor shall start and complete the Work in the sequence set forth in the accepted Dredging and Operations Plan. This plan will incorporate the elevations, slopes, and dimensions shown on the Drawings and the dredging sequence, phases, and dredging tolerances specified herein. General sequence shall be from upstream to down-stream in both the river and the ship canal.

3.03 EXAMINATION AND PROTECTION

A. Contractor shall locate and protect overhead and underground utilities, and other facilities or structures that lie in or adjacent to Work areas. Known utility information is shown on the Drawings.

3.04 NON-CRITICAL STRUCTURES

A. Where dredging occurs adjacent to Non-critical Structures, Contractor shall avoid disturbing or creating the potential to undermine the existing structure.

B. Contractor shall maintain a maximum offset of five feet from Non-critical Structures to limit the potential to impact them with the dredging equipment.

3.05 CRITICAL STRUCTURES

A. Discussions have been had with owners of Critical Structures adjacent to DMUs regarding the dredging activities. Where Critical Structure owners have agreed to allow complete dredging of contaminated materials, and will provide a permit for the dredging or have signed a liability waiver for the dredging, Contractor shall perform complete dredging as shown on the Drawings. This approach applies to the following Critical Structures:

1. Skyway Bridge (DMUs 6b and 7a; Drawing DO-2). A copy of the permit form to be completed by the Contractor is included in Appendix F to the Basis of Design reports.

2. Buffalo Color Area A (DMUs 9 and 10; Drawing DO-4) and Area D (DMUs 11 through 15; Drawing DO-4). A copy of the liability waiver is included in Appendix F to the Basis of Design reports.
3. General Mills Building (DMU 45b; Drawing DO-2). A copy of the liability waiver is included in Appendix F to the Basis of Design reports.
4. RiverWright grain elevator (DMU 44a; Drawing DO-8). A copy of the liability waiver is included in Appendix F to the Basis of Design reports.

B. In some locations where Critical Structure owners have not agreed to allow dredging of contaminated materials adjacent to such structures, Contractor shall place an armored cap over the existing contaminated sediment adjacent to the Critical Structure as shown on the Drawings. This approach applies to the following Critical Structures located on the ADM/Pillsbury property:

1. ADM/Pillsbury Mills Warehouse (Drawing DO-1).
2. ADM/Pillsbury Mills Tower (Drawing DO-1).
3. ADM/Pillsbury Mills Wharf (Drawing DO-1).
4. Great Northern Elevator (Drawing DO-1).

C. In some locations where Critical Structure owners have not agreed to allow complete dredging of contaminated materials, the dredge prism has been modified to avoid disturbance of sediment in the vicinity of the Critical Structure. The Drawings reflect the modified dredging approach. This approach applies to the following Critical Structures:

1. General Mills Building (DMU 5; Drawing DO-2).
2. General Mills Tower (DMU 5; Drawing DO-2).
3. General Mills Grain Elevator (DMU 6a; Drawing DO-2).
4. Cargill (DMUs 38, 39, and 40; Drawing DO-7).
5. Naval Park (DMU 45d; Drawing DO-10).
6. Tower next to Concrete Central (DMU 37c; Drawing DO-6).
7. Concrete Central (DMU 37a; Drawing DO-6).
8. CSX Western Bridge (DMUs 27, 28, and 29; Drawing DO-6).
9. CSX Eastern Bridge (DMUs 17, 18, and 19; Drawing DO-5).
10. NFTA Abandoned Bridge (DMU 10; Drawing DO-5).

D. In one location, the owner of a Critical Structure is completing a design for protection of their Critical Structure during and following execution of the dredging. Dredging in this area shall not occur until design of the protection has been received by the Contractor. This location is Buffalo Color Area A (DMUs 9 and 10; Drawing DO-4).

3.06 DECONTAMINATION OF EQUIPMENT

A. As specified in Section 01 72 20, Decontamination.

3.07 SHORELINE VEGETATION

A. Shoreline Vegetation, where present, shall be removed from the Project Area only as necessary to access sediment along the shoreline of the river designated for removal. Shoreline vegetation shall be trimmed such that the ground is not disturbed. Removed shoreline vegetation shall be transported to the CDF for disposal along with debris.

B. Contractor shall conduct operations in such a manner that material or debris is not pushed outside of dredging limits or otherwise deposited in existing side channels, basins, docking areas, or other areas.

3.08 INTERFERENCE BETWEEN NAVIGATION AND WORK PROGRESS

A. Minimize interference with the use of channels and passages. Contractor shall be responsible for working with shipping interests in the Buffalo River and Ship Canal and arranging the schedule of Work to minimize interference both with third party vessel movements and the progress of the Work.

B. Contractor shall be responsible for coordinating the schedule of Work with operators of marinas to minimize disruption to both the marina operations and the progress of Work.

C. No additional compensation, including payment of standby time, shall be due to the Contractor for impedance of Work from vessel traffic or marinas operating in the Buffalo River or Ship Canal, including loading and unloading operations.

3.09 INTERFERENCE OF VEHICULAR AND RAILROAD BRIDGES ON WORK PROGRESS

A. Contractor will be responsible for coordinating dredge platform and material barge movements on the Buffalo River and Ship Canal with entities in charge of operating lift bridges. No additional compensation, including payment of standby time, shall be due to the Contractor for impedance of Work due to delays in raising lift bridges to allow passage of barges or vessels necessary to perform the Work.

3.10 RANGES, GAUGES, AND LINES

A. Furnish, set, and maintain ranges, buoys, and markers needed to define the work and to facilitate inspection. Establish and maintain gauges in locations observable from each part of the work so that the depth may be determined. Suspend dredging when the gauges or ranges cannot be seen or followed.

3.11 MAINTENANCE

A. Maintain the platform, scows, coamings, barges, pipelines, and associated equipment to meet the requirements of the Work. Promptly repair leaks or breaks along pipelines or in barges. Remove dredged material that leaks out due to leaks and breaks.

3.12 DEBRIS (NON-TSCA-LEVEL)

A. Establish designated area to offload and stage debris at the CDF disposal area. Possible locations for debris offloading are shown on the CDF Usage Application in Appendix J to the Basis of Design reports.

B. Contractor shall determine whether debris shall be offloaded from the material barges before, during, or after hydraulic offloading of sediment.

C. Debris shall be temporarily staged after being offloaded, loaded into trucks from the staging pile, and transported to a disposal area specifically for debris within the CDF. Contractor shall work with the USACE and Owner's Representative to determine a location for debris disposal within the CDF as Work progresses.

3.13 DISPOSAL OF DREDGED MATERIALS

A. Provide for safe and compliant transportation and disposal of dredged materials. Transport and dispose of non-TSCA-level dredged material in the CDF disposal area. The deposit of dredged materials in unauthorized places is forbidden. Comply with rules and regulations of local port and harbor governing authorities.

B. Establish offloading area for dredged materials as shown.

C. Method of Disposal: Deposit dredged material by direct pumping into the CDF from the material handling barges. Notify the Owner's Representative when scows or barges are returned to the dredge area.

D. Hydraulic offloading can be performed by using either the existing pipeline or by using a Contractor-supplied pipeline. Discharge dredged material into the CDF at location(s) determined by the USACE. Obtain additional water to facilitate hydraulic offloading from within the CDF to reduce volume of water entering the CDF.

E. Offload debris that would potentially clog or damage the pumps used to offload the sediment as specified in Article "Disposal of Dredged Materials" in this section.

3.14 NAVIGATION WARNINGS:

A. Furnish and maintain navigation warning signs as required near dredging operations and offloading operations. Contractor shall coordinate with the U. S. Coast Guard's Navigation Center.

3.15 SALVAGED MATERIAL

A. For potentially historic items, relics, and similar objects that may be encountered during sediment removal work, handle as specified in Section 01 35 91, Protection of Historic Artifacts.

B. For nonhazardous demolition and construction waste, handle as specified in Section 01 74 00, Construction and Demolition Waste Management and Disposal.

3.16 DREDGING

A. During dredging, the use of multiple attempts to achieve a full bucket or stockpiling of material within the river or on shoreline is not permitted.

B. Contractor shall design the dredge equipment and methods to minimize the release of re-suspended sediments during dredging and entrainment of surface water in dredged material.

1. Each pass shall be complete. There shall be no stockpiling in the water. Levelling of a completed dredge surface by dragging a beam or the bucket is not permitted. High spots shall be removed by dredging only.
2. Contractor's equipment shall be permitted to ground or bottom out in areas that have not been dredged to grade as long as contract or permit requirements are not violated.
3. Pre- and post-dredge elevations shall be surveyed by the Contractor (see Section 02 21 00, Surveys). These measurements shall form the basis for decisions regarding completion of dredging and quantity calculations by the Owner or Owner's Representative; some corrections for sloughing and sediment movement occurring subsequent to Contractor's interim surveys may be allowed.
4. Contractor shall implement best management practices (BMPs) for environmental dredging to minimize resuspension during dredging operations during both non-TSCA-level and TSCA-level dredging.. Recommended resuspension control BMPs include, but are not limited to:
    a. Barges shall be water-tight and inspected to confirm water-tightness prior to dredging operations and dredged material transport;
    b. Up- and down-gradient silt curtains will be deployed during dredging operations in select DMUs;
    c. A specially designed environmental clamshell bucket will be used for mechanical dredging of sediment;

d. Smoothing with the dredging bucket to contour the dredge cut will not be permitted;
e. Work on slopes shall proceed from top of slope to toe of slope;
f. Contractor shall utilize positioning devices (e.g. GPS) to make the operator aware of the location of the dredge bucket in relation to the top of sediment;
g. Contractor shall use an experienced environmental dredging operator who is capable of implementing BMPs to limit resuspension;
h. Operator shall minimize the overfilling of dredge bucket;
i. Operator shall reduce the rate of bucket descent and retrieval as necessary;
j. Operator shall perform single bites with the bucket; each bucket shall be brought to the surface and emptied between bites;
k. Operator shall release excess water at surface slowly;
l. Operator shall not overfill barges with dredged material, Comply with environmental control requirements when loading barges including such things as required freeboard, no overflowing of free water, etc.;
m. Oil booms should be available for emergency use.

C. Unauthorized Placement of Dredged Material: Excavated material that is deposited other than in places designated or approved will not be paid for and Contractor will be required to remove the misplaced excavated material and deposit it appropriately at Contractor's cost.

D. Sloughing of Material: In areas where no side slope is indicated, make a vertical cut at the boundary and dredge any material that sloughs in prior to the completion of the DMU.

3.17 WATER QUALITY MONITORING:

A. Perform River Water monitoring plan as specified in Section 01 57 19, Environmental Controls.

3.18 PLATFORM REMOVAL

A. Upon completion of the work, promptly remove platform, including ranges, buoys, piles, and other markers or obstructions.

3.19 TSCA-LEVEL SEDIMENT POST-DREDGING CONFIRMATION SAMPLING

A. Conduct TSCA-level sediment post-dredging confirmation sampling as described in Section 02 24 23, Chemical Sampling and Analysis of Soils and Sediment.

3.20 FIELD QUALITY CONTROL

A. Perform field quality control as specified in Section 01 40 00, Contractor Quality Control.

3.21 FINAL CLEANUP

A. Final cleanup shall include the removal of Contractor's plant and equipment. Contractor shall not abandon equipment in the disposal area or other areas adjacent to the worksite.

B. Failure to promptly remove plant, equipment, and materials upon completion of the dredging will be considered a delay in the completion of the final cleanup and demobilization work. In such case, the Owner’s Representative will exercise its right to remove plant, equipment, and materials at Contractor's expense.

3.22 MEASUREMENT AND SURVEYS

A. As specified in Section 02 21 00, Surveys.

3.23 FINAL EXAMINATION AND ACCEPTANCE

A. Perform final survey as specified in Section 02 21 00, Surveys.

B. If Owner’s Representative determines proposed final survey identifies shoals and lumps, return dredging plant to DMU and remove them by dredging. Conduct a new survey following additional dredging activities.

C. When final areas are found to be in a satisfactory condition, the work therein will be accepted as complete. Final quantities will be subject to deductions or correction of deductions previously made because of excessive overdredge depth, dredging outside of authorized areas, or disposal of material in an unauthorized manner.

END OF SECTION